

THE MONIST.

THE FACTORS OF EVOLUTION.

THEIR GRADES AND THE ORDER OF THEIR INTRODUCTION.

THE usually recognised factors of evolution are at least five ; viz. : (1) Pressure of a changing *environment* affecting function and function affecting structure, and the changed structure and function inherited and integrated through successive generations indefinitely. (2) *Use and disuse* of organs reacting on growth-force and producing change in form, structure, and relative size of parts, and such change inherited and integrated through successive generations. (3) *Natural selection* among individuals of a varying progeny, of those most in accord with an ever-changing environment—or as it has been otherwise called “*survival of the fittest*” in each successive generation. (4) *Sexual selection*: the selection by the female, among varying male individuals all competing for her possession, of the strongest or the most attractive. Among mammals the selection is mainly of the strongest as decided by *battle*; among birds, of the most attractive as determined by splendor of color or beauty of song. (5) *Physiological selection*, or selection of those varieties, the individuals of which are fertile among themselves, but sterile or less fertile with other varieties and with the parent stock. This has also been called “*segregate fecundity*” by Gulick, and homogamy by Romanes.

These five factors are all usually but not universally recognised. The first two are Lamarckian, the second two Darwinian factors. In the Lamarckian factors the changes occur *during individual life*,

and the offspring is supposed to inherit them unchanged. In the Darwinian factors on the contrary the *changes are in the offspring*, and the individuals during life are supposed to remain substantially unchanged. The fifth factor has, only very recently, been brought forward by Romanes and Gulick and is not yet universally recognised; but we believe that with perhaps some modifications it is certain to triumph. (6) To these recognised factors of organic evolution must now be added, in *human evolution*, another and far higher factor, viz. conscious, voluntary *co-operation in the work of evolution*, conscious striving for the betterment of the individual and of the race. This factor consists essentially in the *formation and pursuit of ideals*. We call this a factor, but it is also much more than a factor. It stands in place of nature herself—it is a higher-rational nature using all the factors of physical nature for its own higher purposes. To distinguish the evolution determined by this factor from organic evolution, we often call it *progress*.

Underlying all these factors as their necessary condition, and therefore themselves not called factors, are two opposite operative principles, viz. *heredity and variability*. Like the conservative and progressive elements in society, one tends to fixedness, the other to change. The one initiates change, the other accumulates its effects in successive generations. The one tries all things, the other holds fast to whatever is good. They are both equally necessary to the successful operation of any or all of the factors.

Let us now compare these six factors, as to their grade or position in the scale of energy and as to the order of their introduction.

The first two—Pressure of the environment and Use and disuse, i. e. the Lamarckian factors—are the lowest in position, most fundamental in importance, and therefore most universal in their operation. They are therefore also first in the order of time. They precede all other factors and were *for a long time the only ones in operation*. For observe: all the selective factors, viz. those of Darwin and Romanes, are wholly conditioned on Reproduction; for the changes in the case of these are not in the individual life but only in the offspring. And not only so but they are also strictly *conditioned on sexual modes of reproduction*. For all non-sexual modes of

reproduction such as fission and budding are but slight modifications of the process of growth, and the resulting multitude of organisms may be regarded as in some sense *only an extension of the first individual*. There is thus a kind of immortality in these lowest protozoa. Of course therefore the identical characters of the first individual are continued indefinitely *except in so far as they are modified* in successive generations by the effect of the environment or by use and disuse of organs—i. e. by *Lamarckian factors*. In sexual generation, on the contrary, the characters of two diverse individuals are funded in a common offspring; and the same continuing through successive generations, it is evident that the inheritance in each individual offspring is infinitely multiple. Now the tendency to variation in offspring is in proportion to the multiplicity of the inheritance: for among the infinite number of slightly different characters, as it were offered for inheritance in every generation, some individuals will inherit more of one and some more of another character. In a word, sexual generation, by multiple inheritance, tends to variation of offspring and thus *furnishes material for natural selection*.

Thus then I repeat, all the selective factors are absolutely dependent for their operation upon sexual reproduction. *But there was a time when this mode of reproduction did not exist*. It is certain the non-sexual preceded the sexual modes of reproduction. I cannot stop now to give the reasons for believing this. I have already given them in some detail in a previous article* to which I would refer the reader. Suffice it to say now that the order of introduction of the various modes of reproduction culminating in the highest sexual modes is briefly as follows: (1) *Fission*. An organism of the lowest kind grows and divides into two. Each half grows to mature size and again divides; and so on indefinitely. In this case there is no distinction between parents and offspring. Each seems either or neither. (2) *Budding*. Growth-force concentrating in one part produces a *bud*, which continues to grow and individuate itself

* *Genesis of Sex*, *Pop. Sci. Monthly*, 1879, Vol. xvi. p. 167. *Revue Scientifique*, Feb. 14, 1880.

more and more until it separates as a distinct individual. This is a higher form than the last because in this case the individual is not sacrificed. Only a small part separates and the separated part is in some sense an *offspring*. We have therefore for the first time the distinction of parent and offspring. (3) By the *law of differentiation and localisation of functions*, the bud-forming function is next relegated to a special place and we now have a bud-forming organ. (4) By another general law, the law of *interior transfer*, the bud-forming organ is next transferred for greater safety to an interior surface and thus *simulates* an ovary, although not yet a true ovary or *egg-forming* organ. Examples of all these steps are found among existing animals.

Thus far reproduction is non-sexual. But now comes the great step, i. e. the introduction of sexual reproduction, in its lowest forms. (5) This simulated ovary or bud-forming organ becomes a true ovary or egg-forming organ; or rather, at first, a combination of ovary and spermary. The same organ prepares two kinds of cells, male and female, germ-cell and sperm-cell, which by their union produce an egg which develops into an offspring; and not only an offspring in the sense of a separated part of a previous individual, but in some sense a new creature, the creation of a *new individual*. There is an enormous difference and even contrast between this and all preceding modes. In non-sexual modes one individual becomes two; in this, two individual cells unite to form one. It is an expensive, even wasteful mode unless attended with some great advantage. The nature of this advantage we will presently see.

Thus far we have given only the lowest form of sexual generation. The two sexual *elements* only, germ-cell and sperm-cell are separated from each other, but not yet even the sexual organs, ovary and spermary, much less the sexual individuals, male and female. (6) The sex-element-forming function is next differentiated and localised in two different organs, ovary and spermary, but not yet in two different individuals. This is hermaphroditism so common in plants and in lower animals. (7) The already separated sexual organs are next localised in different individuals, and we now have male and female individuals. This is the case in many plants

and in all the higher animals. (8) And finally these male and female individuals become more and more diverse in character.

The object of this whole process of separation, first of the elements, then of the organs, then of the individuals, and last the increasing divergence of the individuals, is undoubtedly the funding of more and more diverse characters in a common offspring; and thus by increasing multiplicity of inheritance to insure larger variation in offspring and thereby furnish more abundant material for natural selection. This is far more than a compensation for the apparent wastefulness of this mode of reproduction.

If then the non-sexual preceded the sexual modes of reproduction, evidently, *at first, only Lamarckian factors could operate*. Evolution was then carried forward wholly by changes in the individual produced by *the environment* and by *use and disuse of organs*, continued and increased through successive generations indefinitely. It is probable therefore that for want of the selective factors, the rate of evolution was at first comparatively slow; unless indeed, as seems probable, the earliest forms were, as the lowest forms are now, more plastic under pressure of physical conditions than are the present higher forms. The great contrast between the Lamarckian and Darwinian factors in this regard, and the slowness of change *now* in higher forms under *Lamarckian factors alone*, is best shown in plants where either kind of factors may be used at pleasure. In these, if we wish to *make* varieties, we propagate by seeds—sexual reproduction—but if we wish to *preserve* varieties, we propagate by buds and cuttings—non-sexual reproduction.

We have taken the two Lamarckian factors together, in contrast with the Darwinian. But even in the two Lamarckian factors there is a great difference in grade. Undoubtedly the lowest and first introduced was pressure of the *physical environment*. For even *use and disuse* of organs implies some degree of volition and voluntary motion, and therefore already some advance in the scale of evolution.

With the introduction of sex another entirely different and higher factor was introduced, viz. *natural selection*, among a varying progeny, of the fittest individuals. We have already seen how

sexual generation produces variation of offspring and how this furnishes material for natural selection. As soon, therefore, as this form of generation was evolved, this higher factor came into operation, and immediately, as it were, *assumed control* of evolution, and the previous factors *became subordinate* though still underlying, conditioning, modifying the higher. The result was an immediate increase in the speed and in the diversity of evolution. It is very worthy of note too, that it is in the higher animals, such as birds and mammals, where we find the highest form of sexual generation, where the diversity of funded characters and therefore the variation in the offspring is the greatest, and natural selection most active: it is precisely among these that the Lamarckian factors are most feeble, because during the most plastic portion of life the offspring is removed from the influence of the physical environment and from the effects of use and disuse, by their enclosure within the womb or within a large egg well supplied with nourishment. In these, development is already far advanced before Lamarckian factors can operate at all.

Next I suppose *Physiological selection* or Romanes's factor came into operation. After the introduction of sex, it became necessary, that the individuals of some varieties should be in some way *isolated*, so as to prevent the swamping of varietal characters as fast as formed, in a common stock by cross breeding. In very low forms with slow locomotion, such isolation might easily take place accidentally. Even in higher forms, changes in physical geography or accidental dispersion by winds and currents, would often produce *geographical isolation*; and thus by preventing crossing with the parent stock, secure the formation of new species from such isolated varieties. But in order to insure in all cases the preservation of commencing species, *sexual isolation* was introduced or evolved as I suppose later, and according to Romanes somewhat as follows:

All organs are subject to variation in offspring, but none are so sensitive in this regard as the reproductive organs; and these in no respect more than in relative fertility under different conditions. Suppose then the offspring of any parent to vary in many directions. By cross-breeding among themselves and with the parent stock,

these are usually merged in a common type, their differences pooled, and the species remains fixed or else advances slowly by natural selection, along *one line*, as physical conditions change in geological time. But from time to time there arises a variation in the reproductive organs of some individuals, of such kind that these individuals are fertile among themselves, but sterile or less fertile with other varieties and with the parent stock. Such individuals are *sexually isolated* from others, or *sexually segregated* among themselves. Their varietal differences of all kinds are no longer swamped by cross-breeding, but go on to increase until they form a new species. It is evident then, as Romanes claims, that natural selection alone tends to *monotypal* evolution. Isolation of some sort seems necessary to *polytypal* evolution. The tree of evolution under the influence of natural selection alone grows palm-like from its terminal bud. Isolation was necessary to the starting of lateral buds, and thus for the *profuse ramification* which is its most conspicuous character.

Next, I suppose, was introduced, *sexual selection*, or contest among the males by battle or by display, for the possession of the female, the success of the strongest or the most attractive, and the perpetuation and increase of these superior qualities of strength or beauty in the next generation. This I suppose was later, because connected with a higher development of the psychical nature. This is especially true when beauty of color or song determines the selection. As might be supposed therefore, this factor is operative only among the highest animals, especially birds and mammals, and perhaps some insects.

Next and last, and only with the appearance of man, another entirely different and far higher factor was introduced, viz. *conscious, voluntary co-operation in the work of evolution*—a conscious voluntary effort to attain an *Ideal*. As already said, we call this a factor, but it is much more than a factor. It is another nature working in another world—the spiritual—and like physical nature using all factors, but in a new way and on a higher plane. In early stages man developed much as other animals, unconscious and careless whither he tended and therefore with little or no voluntary effort to

attain a higher stage. But this voluntary factor, this striving toward a goal or ideal, in the individual and in the race, increased more and more until in civilised communities of modern times it has become by far the dominant factor. Reason, instead of physical nature, takes control, though still using the same factors.

Now, in this whole process, we observe two striking stages. The one is the introduction of Sex, the other the introduction of Reason.* They might be compared to two equally striking stages in the evolution of the individual, viz. the moment of *fertilisation* and the moment of *birth*. As the ontogenic evolution receives fresh impulse at the two moments of fertilisation and of birth; so the evolution of the organic kingdom at the two periods mentioned. With the appearance of *sex*, three new and higher factors are introduced, and these immediately assumed control and quickened the rate of evolution. With the appearance of reason in man another and far higher factor is introduced which in its turn assumes control, and not only again quickens the rate, but elevates the whole plane of evolution. This voluntary, rational factor not only assumes control itself, but transforms all other factors and uses them in a new way and for its own higher purposes.

This last is by far the greatest change which has ever occurred in the history of evolution. In organic evolution nature operates by necessary law without the voluntary co-operation of the thing evolving. In human progress man voluntarily co-operates with nature in the work of evolution and even assumes to take the process mainly into his own hands. Organic evolution is by *necessary* law, human progress by *free*, or at least by *freer*, law. Organic evolution is by a *pushing* upward and onward from below and behind, human progress by an aspiration, an attraction toward an ideal—a *pulling* upward and onward from above and in front.

*By Reason I mean the faculty of dealing with the phenomena of the inner world of consciousness and ideas, or *reflection* on the facts of consciousness. Animals live in *one* world, the *outer world of sense*; man in *two* worlds, in the outer world like animals, but also in the inner and higher *world of ideas*. All that is characteristic of man comes of this capacity of dealing with this inner world. In default of a better word I call it Reason. If any one can suggest a better word will gladly adopt it.

This great change may well be likened to a *birth*.* Spirit or Reason or the Psyche—call it what you like—was in embryo in animals in increasing degrees of development through all geological times and came to birth and capacity of free activity, became free spirit investigating its own phenomena in man. In animals the evolution of Psyche was the unconscious result of organic evolution. In man the Psyche is *born* into a new world of freer activity and undertakes to develop itself.

It may be well to stop a moment and show briefly some of the striking differences between organic and human evolution, differences resulting wholly from the introduction of this new factor, or rather this evolution on a new and higher plane.

(1) In organic evolution the fittest are those most in *harmony with the environment* and therefore they *survive*. In human evolution the fittest are those most in *harmony with the ideal*, and often, especially in the early stages of evolution, during the dominance of natural selection, they *do not survive* because not in harmony with the social environment.

(2) In organic evolution the weak, the helpless, the unfit in any way, *perish*, and ought to perish, because this is the most efficient way of *strengthening the blood*, or *physical nature*. In human evolution the weak, the helpless, the physically unfit, are *sustained*, and ought to be sustained, because sympathy, love, pity *strengthens the spirit or moral nature*. But the spirit or moral nature is also sustained by, and conditioned on, the physical nature. In all our attempts therefore to help the weak we must be careful that we avoid poisoning the blood and weakening the physical health of the race. This we believe can and will be done by *rational education*, physical, mental, and moral. We only allude to this. It is too wide a subject to follow up here.

(3) In organic evolution the *form must* continually *change* in order to keep in harmony with the changing environment. In other words evolution is by constant *change of species*, genera, etc.; there

*See *Evolution and its Relation to Religious Thought*, Part iii. Chap. iv, where the writer's views are more fully brought out.

must be a continual evolution of *new forms*. In human evolution, and more and more as civilisation goes on, man modifies the environment so as to bring it in harmony with himself and his wants, and therefore there is *no necessity* for change of form or *making of new species of man*. Human evolution is not by modification of *form*—new species, but by modification of spirit—new planes of activity.

(4) In organic evolution as a higher factor arises it assumes control, and previous factors sink into subordinate position. But in human evolution the rational factor not only assumes control but transforms all other factors, using them in a new way and for its own higher purposes. Thus the Lamarckian factor—*environment*—is modified and even changed so as to affect suitably the human organism. This is *Hygiene* or *Sanitation*. Again, the various organs of the body and faculties of the mind are deliberately *used* (another Lamarckian factor) in such wise as to produce their highest efficiency. This is *education*, or *training*, physical, mental, moral. So also the selective factors are similarly transformed, and natural selection becomes rational selection. This is freely applied to domestic animals and with limitations imposed by reason itself will be applied to man.

(5) The way of evolution toward the highest, i. e. from Protozoa to man and from lowest man to the ideal man, is a *very narrow way*, and few there be that find it. In the case of organic evolution it is *so* narrow, that once get off the track and it is impossible to get on again. No living form of animal is now on the way to form man, can by any possibility develop manward. They are all gone out of the way. They are all off the trunk line. The golden opportunity is past. The tree of evolution is an *excurrent* stem continuous to the terminal shoot—man. Once leave the main stem as a branch, it is easy to continue growing in the direction chosen, but impossible to get back again on the straight upward way to the highest. In human evolution whether individual or racial, the same law holds, but with a difference. If an individual or a race gets off from the straight and narrow way toward the highest, the Divine ideal, it is *hard* to get back on the track; hard but not

impossible. Man's own effort is the chief factor in his own evolution. By virtue of his self-activity, and through the use of reason, man alone is able to rectify an error of direction and return again to the deserted way.

REFLECTIONS ON THE ABOVE PRINCIPLES AND THEIR APPLICATION TO SOME QUESTIONS OF THE DAY.

I.

Just now there is much controversy in regard to the factors of evolution. Both Darwin and Spencer, the two greatest expounders of the modern theory of evolution, acknowledge and insist upon at least four factors; viz. the two Lamarckian and the two distinctively Darwinian. The only difference between them is in the relative importance of the two sets; Spencer regarding the former and Darwin the latter as the more potent. But some late Darwinians have gone far beyond Darwin himself in their estimate of the power of the most distinctive Darwinian factor, viz. natural selection. Weismann and Wallace have each written a book, and Lankester many excellent articles to show that natural selection is the one sole and sufficient cause of evolution, that changes during the individual life whether by effect of the environment or by the use and disuse of organs *are not inherited at all*, that Lamarck was wholly wrong and that Darwin (in connection with Wallace) is the sole founder of the true theory of evolution, and finally that Darwin himself was wrong only in making any terms whatever with Lamarck.

The argument for this view has, perhaps, been most strongly put by Weismann and is based partly on experiments, but mainly on his ingenious and now celebrated theory of the *immortality of germ-plasm*. The animal body consists of two kinds of cells wholly different in function, somatic cells and germ-cells, including in this last the sexual elements both male and female. Somatic cells are modified and specialised for the various functions of the body; germ-cells are wholly unmodified. The somatic cells are for the conservation of the *individual* life, germ-cells for the conservation of the *species*. Now according to Weismann, *inheritance is only through germ-cells*. Environment affects only the somatic cells and there-

fore changes produced by environment cannot be inherited. Sexual generation was introduced for the purpose of producing variability in progeny and thus furnishing material for natural selection, as this was the only means of evolutionary advance. Weismann made many experiments on animals, especially by mutilation, to show that somatic changes are not inherited.

We shall not argue this question but content ourselves with making three brief remarks.

1. If the views presented in this article be true, then the Lamarckian factors must be true factors, because *there was a time when there were no others*. They were necessary therefore to start the process of evolution, even if no longer necessary at present.

2. But if the Lamarckian factors were ever operative, *they must be so still*, though possibly in a subordinate degree. A lower factor is not abolished, but only becomes subordinate to a higher factor when the latter is introduced. Thus it may well be that Lamarckian factors are comparatively feeble at the present time and among present species, especially of the higher animals, and yet not absent altogether. In the earliest stages of evolution there was a complete *identification of germ-cells and somatic cells*—of the individual with the species. In such cases, of course, the effect of environment must be inherited and increased from generation to generation. But the differentiation of germ and somatic cells was not all at once; it was a *gradual process*, and therefore the effect of the environment *on the germ-cells through the somatic cells* must have continued, though in decreasing degree, and still continues. The differentiation is now, in the higher animals, so complete that germ-cells are probably not at all affected by changes in somatic cells, unless these changes are *long continued in the same direction and are not antagonised by natural selection*.

3. It is a general principle of evolution that *the law of the whole is repeated with modifications, in the part*. This is a necessary consequence of the Unity of Nature. We ought to expect therefore and do find, that the order of the use of the factors of evolution is the same in the evolution of the *organic kingdom*, in the evolution of *each species*, and in the evolution of *each individual*. In all these

the physical factors are first powerfully operative, then become subordinate to organic factors, and these in their turn to psychical and rational factors. Therefore, as the individual in its early stages, i. e. in embryo and infancy, is peculiarly plastic under the influence of the physical environment and afterwards becomes more and more independent of these: so a species when first formed is more plastic under the influence of the Lamarckian factors and afterwards becomes more rigid to the same. And so also the organic kingdom was doubtless at first more plastic under Lamarckian factors, and has become less so in the present species, especially of the higher animals. The principal reason for this, as we have already seen, is the increasing differentiation of germ and somatic cells, and the removal of the former to the interior where they are more and more protected from external influence.

II.

Some evolutionists—the materialistic—insist on making human evolution identical in all respects with organic evolution. This we have shown is not strictly true. The very least that can be said is that a new and far more potent factor is introduced with man, which modifies greatly the process. But we may claim much more, viz. that evolution is here on a wholly different and higher plane. The factors of organic evolution are indeed still present and condition the whole process; but they are not left to be used by nature alone. On the contrary, they are used in a new way and for higher purposes by Reason.

But by a revulsion from the materialistic extreme, some have gone to the opposite extreme. They would place human progress and organic evolution in violent antagonism, as if subject to entirely different and even opposite laws. But we have also shown, that although the distinctive human factor is indeed dominant, yet it is underlaid and conditioned by all the lower factors—that these lower factors are still necessary as the agents used by Reason.

III.

We have already alluded to Weismann's and Wallace's views, but there is one important aspect not yet touched.

If Weismann and Wallace are right, if natural selection be indeed the only factor used by nature in organic evolution and therefore available for use by Reason in human evolution, then alas for all our hopes of race-improvement, whether physical, mental, or moral! All enlightened schemes of *physical culture* and of *hygiene*, although directed indeed primarily for the strength, health, and happiness of the *present generation*, yet are sustained and ennobled by the conviction that the physical improvement of the individual, by inheritance enters into a similar improvement of the race. All our schemes of *education*, intellectual and moral, although certainly intended mainly for the improvement of the individual, are glorified by the hope that the race is also thereby gradually elevated. It is true that these hopes are usually extravagant; it is true that the whole improvement of the individuals of one generation is not carried over by inheritance into the next; it is true therefore that we cannot by education raise a lower race up to the plane of a higher race *in a few generations*; but there must be a small residuum, be it ever so small, carried forward by inheritance and accumulated from age to age, which enters into the slow growth of the race. If it be true that reason must direct the course of human evolution, and if it be also true that selection of the fittest is the only method available for that purpose; then, if we are to have any race-improvement at all, the dreadful law of *destruction of the weak and helpless* must with Spartan firmness be carried out voluntarily and deliberately. Against such a course all that is best in us revolts. The use of the Lamarckian factors, on the contrary, is not attended with any such revolting consequences. All that we call education, culture, training, is by the use of these. Our hopes of race-improvement therefore are strictly conditioned on the fact that the Lamarckian factors are still operative, that changes in the individual, if in useful direction, are to some extent inherited and accumulated in the race.

IV.

We have said that the new factor introduced with man is a voluntary co-operation in the process of evolution, a conscious upward striving toward a higher condition, a pressing forward toward

an ideal. Man contrary to all else in nature is transformed, not in *shape* by external environment, but in *character by his own ideals*. Now this capacity of forming ideals and the voluntary pursuit of such ideals, whence comes it? When analysed and reduced to its simplest terms, it is naught else than the consciousness in man of his relation to the infinite and the attempt to realise the divine ideal in human character.

JOSEPH LE CONTE.

ILLUSTRATIVE STUDIES IN CRIMINAL ANTHROPOLOGY.

III.

THE PHYSIOGNOMY OF THE ANARCHISTS.

ONE of the most curious applications, and perhaps the most practical, of Criminal Anthropology, (of that new science which has associated itself with sociology, psychiatry, and history,) is that which flows from the study of the physiognomy of the political criminal. For not only does it appear to succeed in furnishing us with the juridical basis of political crime, which hitherto seemed to escape all our researches, so completely that until now all jurists had ended by saying that there was no political crime; but it seems also to supply us with a method for distinguishing true revolution, always fruitful and useful, from utopia, from rebellion, which is always sterile. It is for me a thoroughly established fact, and one of which I have given the proofs in my "*Delitto Politico*,"* that true revolutionists, that is to say, the initiators of great scientific and political revolutions, who excite and bring about a true progress in humanity, are almost always geniuses or saints, and have all a marvellously harmonious physiognomy; and to verify this it is sufficient simply to look at the plates in my "*Delitto Politico*." What noble physiognomies have Paoli, Fabrizi, Dandolo, Moro, Mazzini, Garibaldi, Bandiera, Pisacane, la Petrowskaia, la Cidowina, la Sassulich! Generally we see in them a very large forehead, a very bushy beard, and very large and soft eyes; sometimes we

*1890.

meet with the jaw much developed, but never hypertrophic; sometimes, finally, with paleness of the face (Mazzini, Brutus, Cassius); but these characteristics seldom accumulate in the same individual to the extent of constituting what I call the criminal type.

In a study that I have made with three hundred and twenty-one of our Italian revolutionists, (against Austria etc.,) nearly all males, (there were twenty-seven women to one hundred men,) the proportion of the criminal type was 0.57 per cent.; i. e. 2 per cent. less than in normal men. Out of thirty celebrated Nihilists, eighteen have a very fine physiognomy, twelve present some isolated anomalies, two only present the criminal type (Rogagiew and Oklasdky), that is to say 6.8 per cent. And if from these unfortunate men who represent to us, even psychologically, the Christian martyrs, we pass to the regicides, to the presidentialicides, such as Fieschi, Guiteau, Nobiling, and to the monsters of the French Revolution of 1789, such as Carrier, Jourdan, and Marat, we there at once find in all, or in nearly all, the criminal type. And the type again frequently appears among the Communards and the Anarchists. Taking fifty photographs of Communards I have found the criminal type in 12 per cent.; and the insane type in 10 per cent. Out of forty-one Parisian Anarchists that I have studied with Bertillon at the office of the police of Paris, the proportion of the criminal type was 31 per cent.

In the rebellion of the 1st of May last I was able to study one hundred Turin Anarchists. I found the criminal type among these in the proportion of 34 per cent., while in two hundred and eighty ordinary criminals of the prison at Turin the type was 43 per cent.

TABLE OF PERCENTAGE OF CHARACTERISTICS.

CHARACTERISTICS.	TURIN ANARCHISTS	ORDINARY CRIMINALS	CHARACTERISTICS.	TURIN ANARCHISTS	ORDINARY CRIMINALS
Exaggerated plagiocephaly.....	11	21	Dental anomalies.....	30	20
Facial asymmetry.....	36	60	Anomalies of the ears.....	64	75
Other cranial anomalies (ultra- brachycephaly etc.).....	15	44	Anomalies of the nose.....	40	57
Very large jaw.....	19	29	Anomalous coloration of skin....	30	8
Exaggerated zygomas.....	16	23	Old wounds.....	10	26
Enormous frontal sinus.....	17	19	Tattooing.....	4	10
			Neuro-pathological anomalies....	8	26

Among the 100 individuals arrested on the 1st of May, 30 per cent. were recidivists for common crimes; among the others, 50 per cent. Of true prison *habitués* there were 8 among the former and 20 among the latter.

Thanks to the assistance of Dr. Carus of *The Open Court Publishing Company*, who has sent me many curious data and also the work of Schaack, "Anarchy and Anarchists" (Chicago, 1889), which is very partial, although rich in facts, I have been able to study the photographs of 43 Chicago anarchists, and I have found among them almost the same proportion of the criminal type, that is 40 per cent. The ones that presented this type are the two Djeneks, Potoswki, Cloba, Seveski, Stimak, Sugar, Micolanda, Bodendick, Lieske, Lingg, Oppenheim, Engel and his wife, Fielden, G. Lehm, Thiele, and Most. Especially in Potowski, Sugar, and Micolanda I mark facial asymmetry, enormous jaws, developed frontal sinus, protruding ears; and the same (except the asymmetry) in Seveski and Novak. Fielden has a turned up nose and enormous jaws; Most has acrocephaly and facial asymmetry. On the contrary a very fine physiognomy has Marx, with his very full forehead, bushy hair and beard, and soft eyes; and likewise Lassalle, Hermann, Schwab, the two Spies, Neebe, Schnaubelt, Waller, and Seeger.

In studying the chief anarchists separately,—the martyrs of the Chicago anarchists, it might well be said,—there is found in them all an anomaly, very frequent in normal men as well; that is to say the ears are without lobes; the ears are also developed a little more than normally in all (except in Spies), they are protruding in Lingg, Fischer, and Engel; the jaw is much developed in Lingg, Spies, Fischer, and Engel; all have, however, except Spies,* the forehead fine and full, with great intelligence. In the plates of the journal *Der Vorbote* we find a Mongolic cast of feature in Engel and

* Thus according to the portrait in Schaack's book; but according to information which I later received from General Trumbull of Chicago, this portrait is not true to life. It would seem, then, that the features upon which my opinion is based do not exist.

Lingg, both of whom should have much of the degenerative characters, enormous jaw and zygoma, and Lingg oblique eyes. But these characters are much less apparent in the photographs that I received from *The Monist* and in which the jaw of Fischer even decreases. Perhaps these photographs were taken some years before the crime, when they were very young. Certainly in both instances (in the *Vorbote* and the photographs from *The Monist*) I find a very noble and truly genial physiognomy in Parsons and Neebe. The physiognomy of August Spies is morbid. He has a senile auricle, voluminous jaw bones and a strongly developed frontal sinus. And, it is necessary to remark, the physiognomy corresponds with his autobiography, written with a fierce fanaticism; whilst in the posthumous writings of Parsons and in the writings of Neebe we remark a calm and reflective enthusiasm.

Schwab has the physiognomy of a *savant*, of a student; he much resembles the nihilist Antonoff, beheaded in Russia. (See Plate IV in my "Delitto Politico.") Neebe is quite like an Italian economist well known in America, Luigi Luzzatti.

Fielden has a wild physiognomy, not without sensuality. Parsons resembles Bodio, the great Italian statistician, and in the upper part of the face, Stanley.

When I say that the anarchists of Turin and of Chicago are frequently of the criminal type, I do not mean that political criminals, even the most violent anarchists, are true criminals; but that they possess the degenerative characters common to criminals and to the insane, being anomalies and possessing these traits by heredity; as a fact, the father of Booth was called Junius Brutus, and gave to his son the name of a revolutionist, Wilkes. The fathers of Guiteau and of Nobiling, and the mother of Staps were religious lunatics; and Staps also, like Ravailiac, Clement, Brutus, had hallucinations. In the autobiographies of the *Vorbote* I find that Parsons had a very religious Methodist mother and a father who had much to do with the movement of the Temperance League. Indeed, the Parsons since 1600 had as a family taken part in all revolutionary movements. A Tompkin, a relation of his mother, had taken part in the battles of Brandywine and of Mon-

mouth ; a General Parsons was an officer in the Revolution of 1776, and a captain Parsons engaged in the battle of Bunker Hill.

Spies was born in a chateau celebrated for feudal robberies—called on that account the “Raubschloss.”

The father of Louis Lingg suffered through his labor as a workman a concussion of the brain—according to the *Vorbote*.

The father of Fielden, an orator of power notwithstanding his occupation as a workman, was one of the agitators of the question of agricultural lands for workingmen in England ; he was one of the founders of the “Consumers’ Co-operative Society” and a prime mover in the society of “Odd Fellows.” For those who will object that in many of these relations they see only geniuses, I have only to cite my work “L’Homme de Génie,” where I have proved how often genius is nervous epilepsy, and how almost all the sons of men of genius are lunatics, idiots, or criminals.

This hereditary influence is seen also in the great number of brothers charged together, the two Spies, the two Djeneks, the two Fieldens, and the two Lehms. According to their autobiographies also their fathers or their mothers died early ; from which we may presume that they were old or diseased.

The morbid impressibility of Engel has been admitted by himself. “I cannot,” he said to his wife, “hold within me what I feel. I must explode. The enthusiasm takes possession of me ; it is a disease.” Lingg could not remain quiet an instant ; in his room he always had some dynamite in store. Bodendick was a thief and a mattoïd ; full of cunning, mischief and mad tricks, even according to the *Arbeiter-Zeitung*. He was always dreaming of new explosives. Though insane he was a genius as appears from his poetry, which is published by Schick and is in the style of the celebrated “Song of the Shirt.” The suicide of Lingg with dynamite shows his moral insensibility, as do the words of Parsons addressed to the society of anarchists : “Strangle the spies and throw them out of the window.” In Lingg we see a truly ungovernable epileptoid idea driving him to political action. “I cannot control myself ;” he said, “it is stronger than I.”

I repeat that among the anarchists there are no true criminals ;

even Schaack, the police historian, can name but two criminals, and certainly he would not have spared them if he could have stigmatised them.

Their heroic-like deaths, with their ideal on their lips, proves that they were not common criminals. Nevertheless the psychology of the leaders of the Commune shows in them a true moral insensibility, an innate cruelty, which found a pretext and a scope in politics; and which accords too well with their criminal physiognomies. Marat demands two hundred and ten thousand heads; Vallés speaks of his family with a true hatred; Carrier wrote, "We will make a cemetery of France"; Ferré smiled while by his orders they killed Veisset; and Rigault said in slang to his pistol, "Il faut peter sur le chipau." The last words of Spies before the court express a ferocious hatred towards the rich; and the project of the anarchists of Chicago (if it is true) to blow up a part of the city with bombs attests an absence of the moral sense. We know that many anarchists regard brigands and thieves, such as Pini, Kammerer, and Gasparoni, as their brothers in arms. Booth had for accomplice Payne, a true murderer by profession. See also the journal published at Geneva *L'Explosion*, and the Como journal *Le Poignard*.

But it is necessary to note that hereditary anomaly, if it provokes an anomaly in the moral sense, also suppresses misoneism, the horror of novelty which is almost the general rule of humanity; it thus makes of them innovators, apostles of progress, though the education is too rude: and the fight with relative misery of which all the anarchists of Chicago except Neebe have been the victims, not affording material for useful novelties made of them only failures and rebels, hindering them from comprehending that humanity as a part of nature, which it is, cannot progress at a gallop, *non facit saltus*. Spies on his last day discovered that humanity is misoneic, the slave of custom, and said, quoting the lines in German, "I now understand the poet's words,

'Denn aus Gemeinem ist der Mensch gemacht,
Und die Gewohnheit nennt er seine Amme.'"

[Man has been shaped of what is common,
And habit is the nurse by whom he's reared.]

Evidently if he had understood it before he would not have been an anarchist. Whoever has observed in asylums the conduct of lunatics, will understand that one of their characteristics is originality, just as in men of genius ; only the originality of the insane and of moral lunatics, or of born criminals, is very often absurd or unavailable.

This is why I, although I am an extremist in my partisanship for the death-penalty, cannot approve the shooting of the Communards and the hanging of the anarchist martyrs of Chicago. I deem it highly necessary to suppress born criminals, when they reach the persuasion that being born for evil they can do nothing but evil ; and I believe that their death thus saves the lives of many honest men. But we have to do with a very different thing here, where the criminal type is, as shown above, less frequent than among born criminals.

It is also necessary to consider here the youthful condition of almost all these persons—Lingg 23 years, Schwab 33 years, Neebe 32 years. For at this age men are at the maximum point of their audacity and misoneism ; and I remember a leading Russian Nihilist saying to me that there was not an honest man in Russia who was not a nihilist at 20 years of age and ultra-moderate at 40 years. If the inclination to evil here exists in greater proportion than in law-abiding men, it nevertheless takes an altruistic turn, which is quite the contrary to that which is observed among born criminals, and which commands our admiration and arouses our just pity. This inclination, in associating itself with the want of the new, which is also abnormal in humanity, could, if it were properly directed and were not crossed by misery, prove itself of great value to humanity ; it could trace for it new routes, and in every case be practically useful to it. A born criminal imprisoned for life will kill some gaoler, in a colony will ally himself with the savages, and will never work ; while political criminals in a colony will become more useful pioneers even than law-abiding men. An example is seen in Louise Michel, who in New Caledonia was the most charitable of the sick nurses.

And then there is no political crime against which the punish-

ment of death can be directed. An idea is never stifled with the death of its abettors: it gains with the death of the martyrs if it is good, as is the case in revolutions; and it falls at once into vacuity if it is sterile, as is the case, perhaps, with the anarchists. And then, as judgment cannot be formed of a great man during his life, so a generation cannot in its ephemeral life judge with certainty of the justice of an idea, and for that reason it is not proper to inflict so radical a punishment on its abettors.

CESARE LOMBROSO.

INNOVATION AND INERTIA IN THE WORLD OF PSYCHOLOGY.

I. MISONEISM.

IN the moral world the law which is seen to dominate all the others is the law of inertia. This law of inertia is so powerful that even after having been overcome by the friction of ages it always leaves, even among beings that have most progressed, traces of its original oscillation, in survivals, in rudimentary organs, when it is not renewed in all its completeness in certain atavistic forms.

Inertia in the moral world.—Granting that it were possible and desirable to contest this law in the organic world, it could certainly not be done in the moral world. In fact, although we are thought to be making great progress, yet if we form a graphic chart showing the progress made on the globe, we shall see to what miserable proportions it is reduced. It may be said that all Africa, except certain points encroached on by the Aryans, Australia, and a good half part of America, are almost in the prehistoric state, or at best in the state of the great Asiatic empires of the earliest historic epochs. Or perhaps (as in South America, Hayti, and Siberia) civilisation has only changed the appearances of primitive life, by substituting for immobility an unstable equilibrium, which is almost worse still.

The most certain proof of the extension and of the predominance in the moral world of the law of inertia, is the hatred of novelty, so little noticed, which we call Misoneism, and which arises from the effort and the repugnance we experience when we have to

substitute a new sensation for an old one. And this is so common among animals that it can be regarded as a physiological character.

Minds feeble, enfeebled, or primitive in character, show themselves the most susceptible of repugnance to what is novel; it being understood, however, that it is not a question here of small innovations, such as fashion for women, the change from the elliptic to the circular, tattooing for savages, and sports for children; for not only have the latter no dread of such changes, but on the contrary they wish heartily for them, as they excite the nervous centres, which require change, without irritating them, and without causing pain.

But when the innovation is too radical, it is not merely the savage and the child who repel it with dread; the great majority of men, for whom *misoneism* is a law of nature, are sensible of a feeling of repugnance, as the result of the pain produced by the necessity in which they are placed of causing their brains to be traversed by too rapid transitions, a task not within their power, inertia and the repetition of movements (individual or atavistic) before performed, being natural to ordinary men, as to all animals.

Misoneism in manners.—This may be seen, for example, in the manners and customs of the modern Greeks; notwithstanding the vicissitudes of time, we find in them the ancient Greek.

The French of the nineteenth century are still in many respects such as they are depicted by Strabo (IV, 4), and by Cæsar (De Bello Gallico, IV, 5), lovers of arms and of ostentation, incurably vain, facile of speech, easily carried away by words, and imprudent in their resolves.

Misoneism in religion.—As much can be said of this in relation to religion, literature, and art, where we see *misoneism* triumph. With respect to religion it can even be affirmed that this is the institution most completely based on *misoneism*; to the extent that we see the Christian religion preserve of ancient religions, not only musical harmony (the chant), sacred vestments (the mitre and fibula of the Egyptian priests), the scapular and the sandals of the Roman plebeian, etc., but also the Mithraic legends in certain dogmas which have relation to the sun, and even to ancient fetichism.

Misoneism in morality.—The misoneistic instinct, fed by religion, may leave traces profound enough to form a morality *sui generis*, and provoke among savages remorse at having failed in a brutal custom, be it ever so repugnant, such as among us is provoked in good men by crime.

Misoneism in science.—In the domain of science the history of the various persecutions of men of genius, inventors or reformers, will suffice to prove the terrible influence of misoneism, which is the more intolerant and the more fanatical the more ignorant it is ; and we need only cite the names of Columbus, of Galileo, and of Salomon de Caus, the first inventor of steam apparatus, who was sent to the Bicêtre by Richelieu.

Misoneism in literature.—Likewise to misoneism we owe, in great part, our admiration for old works and ancient ruins, however hideous they may be. Because admired by our fathers and by our forefathers they obtain, so to say, a way of entrance into us, to impose themselves on our veneration. Thus the Sanscrit language for the Hindoo, the Hebrew language for the Jews, and to some extent Latin for many Christian Europeans have become a kind of sacred tongue and linguistic fetich even outside the precincts of religious usage.

The enormous influence of grammarians in imperial Rome, and afterwards during the epoch of decadence, as well as in the middle ages, explains also the persistence of the modern fetichism for grammar, which seems absurd in an age of naturalists and mathematicians.

And from thence comes the not less absurd and yet unshakable faith in classicism, rooted deeply even in men worthy of respect, who cause us to lose the best years of life in stammering in an almost useless tongue.

Misoneism in politics.—The same may be said with much more fitness of many social and political institutions which are thought to be modern and which are only relics of other times ; it is for this reason only that they attract the admiration and the respect of the majority of people, constituting true conventional lies, as Nordau calls them, but which have their *bourgeois* believers and apostles.

In fact, the past is so incorporated in our inward being that even the most refractory of us feel a powerful attraction towards it. Thus we may be as unbelieving as can be wished, and yet at every hour of the day we feel ourselves struck and attracted by the cajoleries of priests. We may be lovers of equality, but, as we have already said, we feel a secret veneration for the heirs of our barons. It is in vain that the uselessness of certain laws is accepted; he who upholds and defends them will meet with the approbation of multitudes, called forth by the sole circumstance that the laws have existed. And if civilisation progresses often, it is because it finds in the changes of climate, of race, or in the appearance of men of genius or madmen, circumstances which end in combining a great many small movements in such a manner as to make of them in time a great one. Max Nordau thinks (with some exaggeration) that progress is due more to a few enlightened despots than to all revolutionists. But this progress was very slow; he who wished to precipitate it, contravened the physiological nature of man; consequently a revolution which is not an evolution, is pathological and criminal.

Misoneism in the punishment of crimes against custom.—This is why in primitive legislation we see offences against custom constitute the *maximum* of delict, of immorality.

II. PHILONEISM.

This theory of misoneism, previously expounded in my "*Delitto Politico*," has aroused opposition from all sides; especially in France, on the part of Brunetière, Proal, Tarde, Joly, and Merlino. "Children," say they, "women, savages are curious, lovers of novelties, and misoneists are so far from being ignorant that you yourself refer to them as being among the academicians; (these last are still it appears in the Latin world admirers of good faith); artists have success only in attempting new paths; all peoples have the love of change; they prove it by their emigrations and by their invasions; the great invasions of the barbarians were an example of it."

"Besides, if there are *misoneists*, there are also *neophiles*, and the one makes up for the other."

"In each of us," writes Tarde, "by the side of habit, a sort of physiological misoneism, exists caprice; by the side of the inclination to repeat, the inclination to innovate. The first of these two necessities is fundamental, but the second is the essential, the *raison d'être* of the others."*

In order to reply to all these objections it is necessary above all to be well understood. As to minor innovations, and caprices that satisfy the need of movement of our organs, from the very fact that they are animate, it is certain that we are all very eager for these; in proportion of course to our sex, our age, and our degree of intellectual culture. The little child will be happy with a toy, he will experience fear or dread at the sight of a mask, of a large animal or even of a small one; I have seen children frightened by a sparrow, by a fly. Woman takes pleasure in disguising herself in a striking manner, in wearing new garments in which to attend great plays in the theatres, but she has a horror of new religious rites, and of new discoveries, to such a degree that a great number still refuse to use linen and knitted work made by machinery; sewing machines themselves find their way among them only very slowly. (Merlino.)

When it is claimed (Merlino) that savages love novelties, from the fact, related by Ellis, that some of them endeavored to procure Bibles, (taking them, perhaps, for playthings,) or arms of which they had seen the useful effects, their nature is misjudged; since even after many years passed in contact with European civilisation, after having worn its clothing and ornaments, they return naked to their forests, where a warm garment would certainly not be an object of embarrassment. To believe with Cardinal Massaia that they offer themselves voluntarily for vaccination, that they even ask it, is to ignore that even among ourselves, vaccination encounters a great number of adversaries. Does not Stanley relate that in his last journey, an epidemic of smallpox having broken out in the camp, many of the porters, although they saw that the vaccinated Zanzibaris did not die, refused to submit to vaccination?

According to Tarde, the superstitious admiration, the enthusi-

* *Revue Philosophique*, October, 1890.

astic veneration by barbarous peoples of various forms of insanity, often baptised as prophetism and saintliness, scarcely accords with the aversion for novelties, that is to say for singularities, which I attribute to them too liberally. But the cause of that admiration is nothing else than the fear, the ignorance which leads them to take a disease for the inspiration of a God. Nevertheless, I am far from denying the influence of madmen in philoneism and in revolutions (as we shall see in the sequel of this article); yet if we observe the Santons of Africa and their obscenities, we see that it is not for their useful and innovating ideas that barbarians venerate madmen.

The Academician will admire a new species of snail, he will thrill with joy at the discovery of a Phœnician inscription that will enable him to learn the name of a tribal chief, he will go into ecstasies before a greater curvity given to a screw, but he will excommunicate the telephone, the telegraph, the railway, the new laws of Darwin.

The artist, also, will love to trace a new arabesque, to change to blue the prevailing color of the rose, but he will never attempt, directly, with success, new methods. The hatred by all the elevated and academical classes which still besets Zola, Balzac, and Flaubert, the action brought against the last named, and the universal scandals raised by De Goncourt, Boito, Rossini, and Verdi, are there to prove it. The first, at least, who attempts a new method in painting, in literature, etc., will encounter only hatred and contempt. And when we smile at models unchangeably fixed by Egyptian art, we do not think that the Madonna and the Jesus of our painters have not changed for eighteen centuries.

Horace wrote :

"Adeo sanctum est vetus omne poema.

Indignor quicquam reprehendi, non quia crasse

Compositum, illepidè putetur, sed quia nuper."

It is then not true, as is objected against me in France (*Journal des Economistes*, 1890), that in extending misoneism to the academies, its greatest intensity is excluded from among the ignorant. Each class, each caste has a proportionate ignorance, and a

repugnance equally proportional for that of which it is ignorant. We have demonstrated it for genius itself, which is sublime on certain sides only to be the lowest on some others, and we could have a proof of it even in the opposition that the most ardent neophiles, the anarchists, make to this theory of misoneism, of which they are thus themselves a confirmation.

Bismarck despises parliamentarianism, peace, arbitration, and even the Latin, or rather European, alphabet. Flaubert and Rosini had a dread of railways. The statesmen who govern Europe are not all geniuses, but they are men not destitute of intellectual culture; and yet how can it be explained that they so strive with ever increasing tenacity and zeal to increase armaments and armies, to the extent of causing ruin to their peoples,—a greater and more complete ruin perhaps, than that which even a disastrous war might occasion? And this for the purpose, they declare, (and it seems to be sincere,) of more surely escaping war, when as a fact one fourth of the money spent for that end would be sufficient to assure the happiness of the peoples governed by affording the social questions which they all pretend to have at heart, a solution which, as things now are, it is ever becoming more difficult to reach. The true cause is in the repugnance they experience to the idea of starting on a fresh path, in the tendency to adhere to old habits which go back even to the epochs of the warrior castes. Indeed in the minds of a very great number, at least among the Germans, a good corporal of the guard is more worthy of consideration than a great scholar; debate in parliament on the erection of a fortress is not permitted, however costly it may be, whilst every one may speak on the establishment of a school; in France, in Italy, and in Germany, to touch the war budget, unproductive and ruinous as it may be, is to raise the hand to the ark of the covenant,—a veritable state crime. But science is a new thing, while the art of war goes back to remotest antiquity; it descends from Achilles and from Cain.

I was not guilty of a self-contradiction when I said that the modern French love novelty as much as their ancestors did. I am too much the friend and too fond of the French to flatter them, and not to tell them exactly what I think. France is undeniably at the head

of the Latin races, but to the same extent, and perhaps more than they, it prefers novelties to the new. It has always had the stormy agitations, rather than the useful results, of revolutions. The great religious reform, Protestantism, touched it without affecting it; the great constitutional reform has taken but slight root, and that two centuries and a half after it was accomplished in England.

Balzac wrote: "In France the provisional is eternal although the French are suspected of loving change."

Novelties to be accepted by the French must be such as do not interfere with their habits. And it is they who have invented the words *routine*, *blague*, and *chauvinism*. It is because they are still in the military period of Spencer. So far as that goes, they have cried out beware! to the English, then, beware to the Russians, now beware to the Germans and the Italians. They change voluntarily their dress, their ministers, their external form of government, but always there remains in them at bottom a slight attachment to the ancient druidical and Cæsarian tendencies. It is not many years since the priest still commanded in Vendée. We have seen the French, while extreme republican, make war for the Pope.

After having a Fourier and Proudhon and, what is more, universal suffrage, they have not yet a social law which gives satisfaction to the just demands of the indigent, or of workingmen, beyond that of the "*probi viri*."

It is true that they have had their peasant wars—their *Jacquerie*—and '89; but these were explosions that aroused them but for a moment only to allow them afterwards to fall much lower. Indeed, but a few centuries after the *Jacquerie*, they saw the same peasants who had raised the insurrection, kiss the horses of the couriers who brought good news of the health of the king. And what a king! Louis XV, who might rather be called the executioner, than the administrator of his people. And after having driven away so many Cæsars, little was wanting to make them fall again under such a trumpery Cæsar as Boulanger if the highest classes of the capital had not been opposed to it.

Moreover certain particular facts, which portray much better their physiognomy, show how fundamentally conservative they are.

Let us cite for example the veneration exhibited by the high classes for the Academies and the passion for heraldic titles and decorations. "France is academic," wrote De Goncourt in *Manette Salomon*.

Sarcey relates that during the siege of Paris, the flesh of the animals of the Jardin des Plantes, having been put up for sale, the common people preferred to suffer hunger rather than eat of it, so that the educated classes alone fed on it.

We know what resistance the French made, under a thousand pretexts, to the reform of their orthography, which is in part merely the relics of the old pronunciation.

Recently, an engineer at Bordeaux wrote to me, that, on his inventing machinery for the easy transference of merchandise from ships to the quays, sturdy opposition was met with on the part of the stevedores of the port, who would have been the first to derive great advantage from it.

The medical faculty at Paris has not only anathematised tartar emetic, vaccine, ether, and the antiseptic method, but also the physicians who substituted the use of horses for the ancient employment of mules to expedite their visits to their patients.*

Is it not in learned Germany that we find Anti-semitism in fashion? And has not Russia made it a law of the state?

In certain districts of Sicily is not the ancient method still preserved of embalming and of painting the bodies of the dead which was practised among the ancient Egyptians?

A recent law-suit tried at Turin has proved that not only the lower classes, but also numbers of persons belonging to the higher classes protect themselves by practices that distinctly recall those of the sorcerers of antiquity. All this would prove that philoneism is rather the exception than the rule.

It is objected to my position, that nations and peoples are such lovers of change that they have always emigrated. But before making this affirmation, we ought to study the causes which impel them to emigration.

* *Revue Scientifique*, 1889.

Day by day the peasants see their wages decrease; yet even then they do not remove from the land that they love more than themselves, and to which they are more closely bound than they ever were by feudal laws. When epidemics produced by the bad quality of cereals, as pellagra and acrodynia, when mortal diseases and the most cruel famine destroy them by thousands, then only, and even then not always, do they come to a determination; while for many years they keep before them the remembrance of their native soil, of that country, which, like a true stepmother, gave them only diseases and sufferings.

I have listened to poor emigrants say to me: "We have only to die! The life that we lead is certain death; and it is for this reason alone that we have determined to emigrate."

As to the invasions of the barbarians, only ill-informed minds can believe that it was the effect of a sudden movement, of a caprice hurrying away masses almost without a reason. On the contrary, all now admit (as was really mentioned in Tacitus, Bk. II., Chap. 2, of the *Annals*) that it was a very slow movement, already begun three centuries before Christ, and of which that of the Cimbri, who came from Jutland, was an episode. The crossing of the Baltic was an easy enterprise. The inhabitants of the coast had a sufficient number of vessels, and from Carlsroon to the nearest ports of Russia and of Pomerania was only a distance of thirty-four leagues.

If the tribes of Germans, Suevians, and Goths were repulsed from Italian soil, they had already taken a firm position on the soil of Gaul. Cæsar (*De Bello Gallico*) speaks of Ariovistus and the Suevians whom he met there as his most formidable enemies. They did not appear to him as forming an isolated body, detached from Germany; on the contrary, he relates that the Germans time and again forced their way into Gaul. Movements within continued, for even after Augustus we find that the Romans did not always encounter the same peoples in the same countries. This is affirmed by Procopius, Paulus Diaconus, and many others.

Let us recall here that already after the death of Nero, Civilis, who was in the service of Rome, led eight cohorts from his country into Gaul where he was defeated, but he was able to make an ar-

rangement, thanks to which he could settle as an ally at a small distance from the borders which he had betrayed (Gibbon).

The Germans (a people composed of voluntary associations of soldiers, almost savages) being hunters rather than cultivators, were naturally obliged to change their residence ; we know indeed with what rapidity the game was exhausted, which obliged those who live by it to overrun an immense extent of territory and continually to transfer their residence to other places ; this is why emigration is in this case the result of the law of inertia, the people not knowing how to replace a precarious form of existence by one that is more stable. They had no towns, but real movable villages that could be compared to those of the Arabs of Africa. Like all nomad peoples and hunters, when the hope of a conquest shone before them, they abandoned their forests and, desiring to reach warmer regions, went from them with their wives and children to war. During long years their efforts were impotent, because until the time of Marcus Aurelius they were divided, precisely like the savages of America, into a great number (40) of small tribes, dispersed over an immense territory and enemies of one another ; it was, consequently, the more easy to subdue them, the rather that not knowing the use of the breast-plate and but little that of iron and of cavalry, they found themselves powerless against the Roman legions, of whose tactics besides they were ignorant.

But when Rome, at the decadence, commenced to recruit its army with Germans, and when less vigilant in guarding the frontiers, she allowed German families, if not even tribes, to pass the same, she found herself in great part disarmed against an enemy who had already set foot against her, bearing her own weapons, and what is worse, who knew her treasures, her tactics, and her weaknesses. Under Tiberius even, it was known that the auxiliary soldiers constituted the principal force of the Roman armies (*nihil validum in exercitibus nisi quod externum*) ; at first equal in number to the legionary soldiers, they much exceeded them afterwards, when the citizens evaded military services, and when under Gallienus the Senators were forbidden to command the army. To all these causes can still be added secondary ones.

Before the historic invasion, emigration had taken place. "When," says Gibbon, "a cruel famine befell the Germans, they had no other resource than to send a third or a fourth part of their young men to seek their fortune elsewhere."

According to the national historians, emigration was due to the disproportion between the size of the population and the means of subsistence in the region where they dwelt (Paulus Diaconus): the Germans were very prolific. As they were not agriculturists, nothing bound them to the soil; pestilence or famine, a victory or a defeat, an oracle of the Gods, or the eloquence of a chief sufficed to attract them to the warmer countries of the south. Germany was then much colder than it is at present. (Gibbon.)

The necessity of fleeing from the domination of a victorious enemy forced the Huns towards the west; religious fanaticism drove the nomad Arabs towards the great Byzantine and Persian empires; religious terror urged the Cimbri and the Teutons to throw themselves on the Gauls and on Italy.* Often also the taste for wine and liquors led them to invade rich countries for these gifts of God.

According to a legend, doubted by some historians, but accepted by others, among them Cipolla, the descent of the Lombards into Italy appears to have been caused by the fact that some of their companions, after having served Narses, conveyed into their country some Italian fruits which excited their curiosity.

All this will suffice to explain the movement we are considering, which commenced slowly among the Northern peoples and afterwards became unrestrainable, and to show how the law of inertia was counteracted among them.

And it is necessary to remark that this need of movement thus begun, did not end with the conquest; but, obeying perfectly the law of inertia, according to which a movement being started it continues indefinitely if friction does not occur to arrest it, it was continued by the crusades, by the Norman invasion of Sicily, and by the epidemics of pilgrimage that may be regarded as the contin-

* *Revue des deux mondes.* June 11, 1889. Berthollet.

uation of the movement towards the South, begun three centuries before Christ, and become a habit when even the necessity was no longer so great as at other times, and when it was even no longer urgent.

Here is still another cause of philoneism ; the successive movements which grow out of those first started.

As the historians very well observe, Mahomet was a continuation of the Judaic Christian revolutionary initiative. "Mahomet was a Nazarene, a Judæo-Christian. Semitic monotheism regained its rights through him, and avenged itself for the mythological and polytheistic complications that Greek genius had introduced into the theology of the first disciples of Jesus." (Renan.) There is more of this in revolutions and still more in rebellions ; progress, philoneism, following the law of accelerated movement and of the same law of inertia, once begun, blindly precipitates itself to opposite excesses,—the very thing that causes its ruin. Thus Cromwell in a country almost feudal and ultra-monarchical reached, or rather was driven by his party, to regicide, and to the foundation of a democratic republic in which the peers were consigned to oblivion and his partisans (of the Barebones parliament) went so far as to wish to do away with lawyers and universities, to forbid dances, theatrical representations, and even Christmas festivities, to mutilate statues on behalf of decency, and to burn sacred pictures. (Macaulay.) This led to a reaction which under Charles II. reached absolute power by consent of parliament. In Christianity castration, and even the abolition of property was reached. We know the excesses of '89.

Passion explains many of these facts, which proceed even to insanity. St. Paul, from an enemy became an apostle of Christ. Clarendon after abandoning himself to despair at seeing his son go over from the service of James to that of William, became a rebel at the end of fifteen days. The parliament of James, ultra-monarchical as it was, rebelled. The conventional Baudot said : "There are men who have fever for twenty-four hours. I have had it for ten years." "In the days of terrible crises," wrote Valbert, "the law of cause and effect seems suspended, the work is accomplished in

an hour. To ask revolution to be wise, is to ask the tempest to break nothing."*

"In every revolution," writes Renan, "the authors of it are absorbed and suppressed by those who succeed them. The first century of the Hegira saw the extermination of the relations and friends of Mahomet by those who pretended to confiscate for their own profit the revolution he had created. In the Franciscan movement the true friends of Saint François d'Assisi, were, after a generation, regarded as heretics and as dangerous men, and were led to the stake by hundreds."

An idea in the first days of creative activity proceeds with giant steps, and we can say, the movement once begun continues by virtue of the law of inertia always to increase; its originator falls behind, and becomes an obstacle to his own idea which persists in moving forward in spite of him. The Ebionites who gave to Christianity its first start became after a century a scandal to the church; their doctrine a blasphemy.†

It is this very tendency, caused by the arousing of passion, that makes all revolutions abortive, that causes them through their own excesses to be the authors of their own destruction, and which neutralises or much decreases the progress made by revolutions.

The gravest objection against misoneism constitutes, accordingly, the strongest proof of it. Like the plant, the animal, and the stone, man remains motionless, unless a disturbance of his state occurs through other forces, and through the law of inertia itself, which after having at first rendered him immovable afterwards drives him to opposite excess, but to replunge him anew into immobility.

The most potent cause is that of physical environment, change of climate. Next comes the crossing of one race with another, and it is to this we owe in great part the marvellous productions of Greek art that arose in Magna Grecia. Then, often, the influence of climate is active, to which is owing the transformation of the

* Valbert. *Le centenaire de 1789*. Paris, 1889.

† Renan. *L'Eglise chrétienne*.

Jew ; so persecutions, and the great calamities which races experience and which determine the selection of the strongest. And to this result contribute above all the impulses impressed by geniuses and by mattoids, who, as I have already pointed out in my work on "Genius" alone possess an intense love for the new, for the very reason that their organisation is different from that of other people. The intensity of individual violence and power here unbalances the tendency to immobility ; but almost always—and I show it in the work referred to—when that intensity is not favored by circumstances, when it does not arise as the final synthesis of a general desire, a latent and universal necessity, but simply as a pathological phenomenon, it becomes again valueless, for the very reason that it is individual. It is owing to this that the efforts of a madman like Cola de Rienzi, and of such geniuses as Alexander, Napoleon, Pombal, and Peter the Great, result in nothing. To beneficent geniuses, as Bolivar, the Gracchi, etc., are attributed all the merit of revolutions which triumph because they were prepared long before by history and by circumstances, and which were only precipitated by them and summed up in them. It suffices to note that the genius of Garibaldi, of Cavour, and of Mazzini, has been able to give us nothing more than Italy as it now is, in order to comprehend that in spite of geniuses and, up to a certain point, in spite of circumstances the work of revolution is durable only when the circumstances that have commenced it persist, and men are profoundly modified by it.

However, the law of inertia always prevailing, (since primitive tendencies always concern it,) these changes are but very slow and, as we have seen, give place to easy relapses ; they become fixed and swell to new movements only when the causes which provoke them continue and become more intense.

In fine, philoneism, progress, also sometimes triumphs—at least with the white race and frequently with the yellow races ; but it is not the result of a sudden movement or of a natural human tendency, but the effect of external physical forces, whether social, historical or the like, which have caused the law of inertia to change its direction. It is therefore the slow result, we might say, of the

small and sensible variations peculiar to men according to their condition, added to grander movements, as well as momentarily barren ones, of geniuses and forces, and to those more powerful ones of the physical and historical environment. Of the resulting product we see only the effects, because without the telescope of history and of sociology we do not perceive the slowness with which they have reached us, and the smallness of the efforts which contribute to it. It is thus that we do not imagine that the great Coral Islands can be the work of billions of small zoophytes accumulated the one on the other during thousands of years. The organic kingdom, like the social, is made up of the sum total of slow and small efforts.

The idea of the Christ and that of Buddha, the way for which had been prepared for several centuries by other geniuses less fortunate than they, miscarries among the people in which it was conceived, and becomes fruitful elsewhere. But dating from the epoch in which its votaries, nihilists of the reverse type, began to multiply and spread, in the lowest and least intelligent strata of society, employing as arms not violence but gentleness, more than three centuries elapsed before it was tolerated and officially recognised. For two hundred and fifty years the plebeians fought at Rome for their liberty. Yet they always heard the Senators say, "Your propositions are too novel." And liberty was granted by the one, and acquired by the others, only soon to be lost, first, in anarchy, then under the dictatorship, and then under the empire.

It is in this sense, that revolutions at the start can be the work of a small number, but they represent, they are the sign of a latent universal sentiment; this is why they grow in direct proportion to time (and time is very long) and gain partisans among their own adversaries. The apostles of Christ numbered only twelve, but a hundred and fifty years later, at Rome alone, there were in the catacombs 737 tombs of Christians; and Renan calculates that at the time of Commodus 35,000 Christians existed. We know that Saint Paul himself was one of the bitterest adversaries of the Christians.

The English revolution, up to the time Charles I. sought to cause the arrest of the four parliamentarians, was anti-republican, and strictly royalist even; but ultimately revolutionary ideas spread

throughout all England, and the zealous but not blind partisans of the king were the first to turn against him after his excesses and his treasons.

In the revolution of Flanders, the chief citizens and a great part of the nobility, held aloof from the movement for a long period ; but all possessed in embryo the feeling uttered by the first apostles and pioneers of the movement. Time, in its slow development, gives rise to the complete expansion of the latent sentiments expressed by misoneism.

For example let us now transfer ourselves to another field ; I wish to speak of the abolition of classical studies. There are perhaps actually five or six of us in Italy who proclaim without fear its absolute necessity ; as we were only three when we proclaimed the necessity of changing the penal laws and of bringing them to examine the criminal rather than the crime.

The first statesman who should attempt to carry out our ideas would fall amid universal scandal ; and yet these very ideas are entertained by all who are not blinded by archæological and academic misoneism. But they have not the courage to avow them and still less to realise them. In a few years these ideas will no longer admit even of discussion.

That is revolution. Let us look, on the other hand, at the ideas of the anarchists ; they are in the heads, and unfortunately in the hands of certain diseased persons, but they are not in the thought of the majority ; consequently all their agitation will be in vain, and result only in isolated commotions and frays.

That is revolt, insurrection. And let no one say that philoneism and progress are found as proportional reaction to misoneic action, an oscillation of the pendulum excluding the law of inertia. The pendulum itself does not oscillate, but remains perpetually motionless until moved ; and its oscillations, even the smallest, are produced the most often by external causes entirely accidental. And the law of inertia is here also so constant, that if it did not find in the friction of the atmosphere a cause of impediment the movement once begun would continue *ad infinitum*. So a ball flies and rebounds, when a force propels it ; and here also if friction did not re-

tard it, it would continue forever the motion once commenced. Inertia is the rule, and mutations are produced by special external incidents, which being usually less persistent, less tenacious, change more the appearance than the reality. And these modifications which are very slow and proceed from external causes, are produced not only among men and among animals, but are met with even in the inorganic world ; it is thus that the salts of copper and of lime, in certain conditions of a warm medium, change their color but not their nature nor their molecular arrangement, and always give the same chemical reactions.

CESARE LOMBROSO.

THE QUESTION OF DUALITY OF MIND.

IT is certainly conceded by all who come in general estimation within the category of thinkers, that psychology, as formerly studied, without basis in physiology, was most unfruitful, as compared with the modern study of it upon that basis. It is therefore quite remarkable to find in quarters of repute, where psychological problems are discussed, some into which enter, even inferentially, either momentary obliviousness, or temporary disregard of truths that are held indisputable by modern thinkers within the lines of the subjects indicated. Yet such contradiction and conflict are found in the constantly recurring attempted demonstration of the dual nature of the mind or the soul, call the entity what one will. That man has within his organisation tendencies which are relatively higher or lower than others within himself, is not to be disputed; but that such mixture of nature is to be regarded as constituting him of dual mental nature, is a proposition untenable coincidently with the maintenance of the proposition that he is in nature physiologically single. It has been maintained lately, that he is physiologically double, but this view has not met with any acceptance worthy of the name. In short, it would seem, from all that we know, that in every individual, psychical being must bear the same relation to physiological that the latter does to physical, and that they are all interdependent. And if this be true, the same relations must hold good when the physical and physiological nature degenerate into the pathological, and we find by observation that they do hold good. So far, therefore, as the lesson inculcated by Stevenson's Dr. Jekyll and Mr. Hyde presents to the popular mind

the idea of dual mental nature in man, it is false. Viewed from the scientific standpoint, the case exhibits nothing more or less than a phase of physical, physiological, and psychical action, terminating in pathological manifestations. Gradually, the physical, physiological, and psychical natures suffer, *pari passu*, and the whole being exhibits profound retrograde metamorphosis, through the continuous degenerations that have been so often and so ably described by Dr. Henry Maudsley, in which all will-power passes away, the whole being becomes involved, and direful death of all higher attributes finally ensues. That, during the struggle in this decadence between the will and the instincts it is natural that it should seem to the outside uninstructed view, and even to the individual sufferer himself, that the phenomenon witnessed is evidence of a dual nature of mind, is not surprising; but it is surprising to find any one of the present day who deems himself scientific, implying that the observed changing mental, moral, and bodily manifestations are not witnesses to co-ordinated change; it is surprising that any scientific inquirer should lend the slightest countenance to the belief that changed psychical phenomena are possible without changed physical and physiological conditions, and yet that is what we often see proclaimed through maintenance of the proposition of the duality of mental nature.

The point mentioned belongs to the most flagrantly unscientific view of the relations and effects of the forces in play under the conditions discussed. But there may be in the inclusive subject-matter of the question minor points as to which erroneous views are sometimes presented to the public as emanating from sources otherwise scientific. Such a one it is my intention to make the principal subject of this paper. In the October number of *The Monist*, in the article "The Magic Mirror," Max Dessoir, the author, says, pages 111 and 112:

"The theory from which I shall proceed in attempting an explanation, has already been frequently touched upon in the course of this article; for certain observations indicated it so clearly that mention of it was not to be avoided. It is the doctrine of the double consciousness of the human soul. Acts are done in the course even of our every-day life, which presuppose for their origin and execution

all the faculties of the soul, yet nevertheless occur without the knowledge of the individual; they require a sort of consciousness and a separate memory beyond the *cognisance* of the normal person. One of the most frequent cases in practical experience is where the thoughts of a person reading aloud wander and become occupied with an entirely different subject; and where despite this aberration the person in question reads correctly with the proper emphasis and expression, turns the leaves, and in short performs acts which without intelligent control are hardly conceivable. An English psychologist, Mr. Barkworth, has acquired such expertness in the practice of this, that during an animated debate he can rapidly and correctly add long columns of figures without having his attention diverted in the least. This points not only to an unconscious intelligence, but—which is of still greater consequence—to an unconscious memory. Mr. Barkworth must keep two series of figures in his mind in order to obtain from them a third; this latter sum he is again obliged to retain in order to add to it a newly acquired fourth; and so on. The latter chain of memories, let it be remarked, performs its office entirely independently of that upon which the recollection of the debate is constructed; and it may therefore be reasonably maintained that there exists beyond the cognisance of the individual, both consciousness and memory; and if the essential components of the ego are found in these two last-mentioned factors, then every person conceals within himself the germs of a second personality. I designate the two halves of consciousness that thus operate in greater or less independence of each other,—in a figurative sense of course,—as super- and sub-consciousness, and comprehend the whole as the doctrine of double consciousness or the double ego."

No one will at this late day, it is to be presumed, dispute the existence in the same individual of subconsciousness, as contradistinguished from superconsciousness; superconsciousness being that which is more familiarly known as self-consciousness, and subconsciousness as that latent consciousness of which we are not at all conscious, and which yet receives impressions which may or may not rise soon, late, or at all into the sphere of self-consciousness; an impress which cannot be summed into self-consciousness by an effort of will, for the obvious reason that the memory has yet taken no cognisance of them. That this subconscious function of the brain is simply a phenomenon dependent upon cell-storage of the brain, the product of which may or may not ever reach self-consciousness, is proved by many circumstances attested by our memory of collated facts concerned in our waking and dream life. Sir Walter Scott, in his story of the "Tapestried Chamber," gives an admirable account of its working under the lead of a sleeper's unconscious

cerebration risen to self-consciousness, for let it be here parenthetically noted that it is absurd, as is sometimes attempted, to rule dream-thoughts out of the realm of self-consciousness, the individuality of the dreamer never being lost, however modified the mental and moral ideation of that individuality may be.

But Max Dessoir evidently confounds subconsciousness with unconscious cerebration. He makes subconsciousness, in the intellection described, a primary factor in execution. Now subconsciousness is the mere tablet, as it were, upon which impressions are made, and unconscious cerebration that faculty of the brain which, without immediate, and perchance future, cognisance of self-consciousness, may evolve from all brain-impressions, whether subconsciously or self-consciously received, thought of which not even the individual himself becomes aware that he is the possessor until it is presented to him as a free gift. This proceeds during sleep as well as during waking, sometimes anticipating, coincidentally with waking, the routine subject of thought for the day. It sometimes in sleep, as well as in waking moments, presents itself with the startling effect of a revelation. Subconsciousness, therefore, is a condition of passivity, and unconscious cerebration one of activity, although, of course, of even unknown existence unless a product of it reaches self-consciousness. They are not to be crudely conceived of as different manifestations of the same thing, any more than an emotion is to be thought of as another aspect of the sensation which produced it, the emotion being qualitatively an entirely new departure from the sensation. Both sensation and emotion represent conditions of activity, whereas, so far as self-consciousness is equal to differentiating them, subconsciousness and unconscious cerebration respectively represent passivity and activity.

But the admission of the coexistence in the same individual of unconscious cerebration with self-consciousness does not involve the concession of the existence of dual mentality, any more than recognised possession of striped and unstriped, voluntary and involuntary muscle, involves the concession that man is physically dual in mechanical motive power. Yet it is upon the basis of the recognised coexistence of double consciousness in man that Max

Dessoir reaches the conclusion that, figuratively speaking, as he says, there is a double ego, by means of whose duplex action different mental processes are simultaneously carried forward. Now, neither figuratively nor otherwise, as should be clearly apparent from what has been said, is there in man a double ego. For although while there is life subconsciousness must exist, and unconscious cerebration proceed, nothing is more open to observation than that subconsciousness and unconscious cerebration, although always present, do not always rise into the sphere of self-consciousness. That, during self-conscious activity of thought on a particular subject, if continued for a long time, subconsciousness may, through unconscious cerebration, in a measure yield tribute to self-conscious thought is undeniable, for we see their effect sometimes visible in the sudden inspiration of the orator and the writer, but that they are factors in ordinary thought-evolution, for immediate use, within very limited spaces of time, is impossible, for we by definition limit subconsciousness and unconscious cerebration to pure unguided automatism, while to self-consciousness we concede the direction of all automatic processes that represent conceptions of the mind. Obviously, to imagine that we direct that which may or may not appear at all in the sensorium, to be directed, and which from its nature, as known from observation, is not likely to appear within moderate time-limits of special thought-evolution, is inadmissible, involving the assertion of two contradictory propositions, for, as matter of experience, we know that the product of unconscious cerebration, even when it appears clearly recognisable as such, seldom manifests itself before the lapse of a few hours.

The simple and complete explanation of the phenomenon observed, in what are deemed simultaneous mental processes, is that they are not absolutely simultaneous. The best illustration that can be given of the manner in which they take place is afforded by the system known as synchronous multiple telegraphy, in which, by means of an admirable apparatus, points on discs, representing makes and breaks of electric current, are, at stations distant from each other, adjusted to synchronous relations with each other, by means of electro-magnetic agency, tuning-forks, and self-adjusting

varying resistances to the currents, so that receiving and transmitting proceeds with a continuousness just short of perfect continuity. I am not attempting to liken the rapidity of thought to that of electricity, even when electricity is embarrassed and slowed by mechanism of man's construction; but otherwise the analogy between so-called simultaneous mental processes and the results obtained from so-called synchronous multiple telegraphy, is as perfect as any analogy can be. Thus the make and break impulses of the will direct the self-conscious flow of nerve-force in receiving and transmitting impulses of almost synchronous time upon various subject-matter successively taken up and dropped. The thought for each is not simultaneous, nor of equal duration, but so nearly simultaneous as to appear so, and of duration sufficient for its task. The individual thought-times are not, therefore, represented, as in the telegraphic instrument described, by equal spaces of time, but bear due relations to the respective difficulties of the subject-matter almost synchronously attacked. It is self-conscious thought that is here involved, whether in sleeping or waking, that is, will-directed thought, for even in sleep we observe the will as imperfectly directing; striving, however, always to direct. As has been admitted, if the process of self-conscious cerebration last over a long space of time, it is possible that some fragment derived from unconscious cerebration may contribute to the grand total of primary flow. This, however, is not of normal occurrence, seeing that unconscious cerebration often deals with matter entirely alien to present self-conscious mental occupation. The fruits of such cerebration are therefore impossible to be counted upon, and therefore cannot be insisted upon as proving from the experience cited by Max Dessoir the existence, even figuratively speaking, of double consciousness construed as forming with self-consciousness a double self; while the well-known action of subconsciousness, unconscious cerebration, and conscious cerebration, as related to one another, amply explain all the phenomena in waking, sleep, and even in hypnotism if we include in that hysteric diathesis.

When, in abstraction, in wrapt attention to a single idea, we are carried past the door at which we had intended to stop, or

continue to read aloud, unobservantly of the sense of words, or otherwise betray that we are buried deep in one absorbing thought; it is not, in the first case, that our automaton has unwontedly borne us along, or in the second, that we are not permitting it to take a partial holiday, for it is our automaton that serves our commonest daily needs; but only that we have, in the first case, forgotten to arrest its movements in due time, and in the second, have not thought it worth while to do so; for when decrepitude overtakes us, and our automaton, sharing in the misfortune, toils wearily along, or requires intense purposiveness for special brain-accomplishment, ideation can no longer afford to give to it its former liberty, but dwells in concentration on a single action; unless, indeed, when that still lower grade is reached, when the automatic man is almost all that remains, and ideation but the fitful glow that may start to futile movement the once efficient mechanism of the human frame. By easy stages, receptivity and communicability, ever lowering in degree, in quantity, and in quality, may dwindle to a single point, and movement be but faint automatic habit; the former high being now occupying the opposite extreme from rapid thought-transmission and receipt, and bodily response to ideation, upon the basis of life's whole energised experience.

Max Dessoir remarks, in a passage shortly following the one already quoted at length:

"Closer investigation teaches further, that in dreams, states of intoxication, in somnambulistic and epileptic attacks, not only does a consciousness different from the normal consciousness rule, but that also between successive periods memory-links of greater or less stability are wont to form."

As to the greater or less closeness, as well as greater or less stability, of the memory-links to which Max Dessoir refers, there can be no dispute; but it is demonstrable that sleeping and waking consciousness of both kinds exactly correspond. The difference observable in waking and dream thought-evolution does not chiefly relate to modified consciousness, but to modified conscientiousness; the defect in both being the necessary consequence of temporary abeyance of normal co-ordination between the nerve-centres. Determinately directed thought, which is necessarily waking thought,

proceeds upon the basis of memorabilia that are the cash in hand of the kind of currency that is temporarily available for logical transactions; while in sleep, conscious cerebration only partially controls its treasures, and often regretfully sees them squandered before its face. Determinately directed thought is necessarily derived from the will, unless one believes with Lord Kames, that thought preserves unbroken heredity; in which case the ego becomes only the witness through life of pure automatism—a position which is easily refuted. The will directs the thought upon the basis of cognate memorabilia, be the channels many or few, by means of semi-synchronous, rotative attention.

The great lapse of time during which the action of subconsciousness may remain unrevealed until, through unconscious cerebration, it reaches self-consciousness, through the medium of recognition of a particular event as of actual occurrence, and how, finally, this recognition, as true, of a particular event, may be restricted for a while to the condition of sleep, and after a long period of incubation at last rise to waking knowledge, is so admirably exemplified by an experience of my own that I here put it on record.

About five years ago I had a dream of a landscape, where there were rocky escarpments partially covered with trees, with a plain as foreground, upon which a carriage drew up to take me home after a day's topographical surveying. Both in dreaming and upon awaking I was vividly impressed with the idea that the place was one in which the topography remained to be finished by me. But when awake, I fruitlessly went over in memory all parts of the coast where I had ever executed topographical surveys, and where by any chance, at any time, I could have left unfinished anything that I was in duty bound to finish. Some time elapsed, and I had the same dream again. Coming at once to the conclusion that, if I should dream it a third time, I should be told (as I should be, if I mentioned it at the second to any indifferent person) that I had dreamed that I dreamed it, I at once described in detail to a member of my family the landscape, the rocks, the trees, the plain, and the coming of the carriage, and requested that all these be memorised. Some months again passed, and the dream in all its vivid-

ness recurred, and was repeated to the same person, agreeing as to its details with those introduced in the recital of the preceding ones.

I never had from the first a doubt that the dream had a foundation in some one concrete fact, but from the lapse of time without a solution of it being afforded, I was all but hopeless that its subject-matter would ever rise into the sphere of full waking knowledge. However, at moderate intervals I dreamt it again and again, each time simply saying to my confidant, "I have had that dream again," and at length, without any special effort directed to its solution, that which had heretofore eluded all efforts to explain, was presented solved.

The uncomfortableness of the dream, it is to be borne in mind, lay in the impression, although contradicted by memory, that I had neglected to finish some piece of topography which it was my duty to finish. Hence the direction of self-conscious thought towards its solution had always been wrong. There was no piece of work of any kind that I had ever neglected to finish. There was, however, a piece of topographical work, which, when I was about to finish it, I was prevented from completing by orders taking me away from the locality to another far distant. The whole tract originally intended to be executed in topography was of about one hundred square miles, a tract of much geological as well as topographical interest, over a portion of which I had been accompanied two or three times by Prof. James D. Dana, who was deeply interested in the execution of the topography, on account of his development from it of the minute geological characteristics of the region. At one boundary of the area mentioned there was a ridge and summit of some nine hundred feet in height, densely covered with a stunted growth of trees. How to get the contours of this ridge by some original plan I had been obliged in advance to settle in my mind, for on the ridge itself nothing could, on account of the dense growth, be seen for any great distance, and over it no roads passed. I had concluded to have simultaneous horizontal and vertical angles taken to staffs, from a line of foot-hills lying parallel with the ridge, when I was ordered to Florida to make there a survey. This was succeeded by surveys in other far-distant localities

during successive years. Not, however, as it appears, until seven years after leaving the locality intimately described, did the first dream related to it take place, and not until rather more than two years thereafter did its repetitions cease with its solution. I said to my confidant when, about three years ago, that solution was reached, "I shall never have that dream again," and it has never since appeared; as why should it, the mystery with which the uncoördinated ego struggled being solved?

We can readily comprehend, from such an experience as this, how it has been possible, as we have learned from well authenticated cases, for a person to lead two somewhat independent thought-lives. What, however, is clearly shown by it is the possibility, for it has been proved, of subconscious record remaining for years dormant, proceeding at last through unconscious cerebration to reach conscious cerebration, but even then conscious cerebration only during sleep, until finally conscious cerebration of waking moments being reached, the judgment seat of co-ordinated faculties, the dream departs, no longer abusing the curtained sleeper, nor ghost-like rising to disturb his waking self-consciousness.

R. MEADE BACHE.

IMMORTALITY.

IF you sit down in the quiet of your own room and calmly ask yourself what it is in reference to a life after death that you really desire and what you may reasonably expect, you will probably be surprised to find what a blank your mind is upon the subject. I doubt if you will find that you inwardly desire it, in the same manner, for example, that you desire wealth, or fame, or beauty. You have grown up in the belief that it is right to desire and believe, but that, you know, is quite a different affair from actual yearning.

Nearly every one puts the thought aside as beyond solution. One says, "My thinking will not change the fact nor my longing bring it about. The duty of the passing day is all I can fulfil." Under this cover of postponed examination the world has grown as indifferent to the question as it was formerly engrossed by it. Fear of offending delicate sensibilities and established beliefs keeps the doubter and modifier silent; whilst the extreme of the omnivorous believer is set over against the out-and-out denier. But the great majority of people are neither believers nor disbelievers, but indifferentists—slowly settling toward an agnostic non-committalism that is destructive of all intellectual and moral earnestness.

It is my conviction that this abrogation of curiosity and examination is a most culpable and dangerous fact. If we live after death it is of tremendous importance; if we do not it is of no less vital import, and the belief, the disbelief, or the evasion is of the most constant influence, unconsciously, subtly, upon every thought and act of every day's living.

Suppose now we divest ourselves of the creeps and shudders usually accompanying a discussion of death and immortality, and fearlessly test the common dogma with a little analysis in the light of scientific research and reason. Let us suppose you are a believer: what is it you believe? You desire: what is it you desire, and how far is your desire feasible? You are convinced: but what is the truth? If possible, in what way and to what extent is a future life possible? If attainable, by whom and by what means? Moreover, the *kind* of belief makes all the difference in the world. I have read somewhere about an African chief who killed his wife's lover, and was defeated at last by his wife's unswerving belief in immortality, she committing suicide in order to join her lover. But the chief was equal to the emergency and he in turn killed himself in order to follow the pair and break up their tête-à-têtes in the other world! It all depends upon what you propose doing with a future life after you get it. You might just as well be digging clams on this earth as "singing Hosannas around the throne" in heaven.

Do you believe in or fervently desire what, with splendid bravery and *abandon* the old creed called "the resurrection of the body"? Terrible counter-queries arise: At what age in your life would you choose as best representing the ideal body for your resurrection? Would you prefer your body as it was when you were a child, when youthful, when mature, or when old? Moreover, it is changing every minute, this body. It is estimated that something like five million blood-corpuscles die every second of your life. Even the two or three pounds of minerals in one's bones are only a little more permanently fixed. All component parts are undergoing change every instant: they soon become grass, grain, or tree, passing again into others' bodies, and so on forever. Is it the form and feature you desire to preserve and not the constituent particles? But form and feature change every day or year, and are as impossible to fix as the atoms themselves. Indeed, is not the whole matter put beyond choice by the evident fact that unless by the fiat of an extramundane deity the only moment possible to fix the bodily form in the mould of eternity would be the death-moment? And yet this were the most undesirable of all seasons, since at that hour the body is in the

weakest, most useless, and most wretched condition of all the hours it has served us. Supposing therefore, that you are so in love with your own body that you would wish to call it into life again and for forever, we see at once that no moment or phase of development could be chosen, except perhaps the dying moment, the least desirable of all, and that the particles of one's body have served their turn in myriad other bodies each having an equally valid claim to his "property." Besides this the absurdity of the whole is emphasised by the crushing fact that all the organic matter of the world has been used over and over for bodies and the earth has not enough hydrocarbons to fit out again with bodies a small fraction of the souls that have lived upon it. Doubtless the combined weight of all the organic bodies that have lived on the earth would be many times the total weight of the globe including its minerals, elements, and gases. It may be frankly admitted that no bodily resurrection is possible.

And it is as certainly undesirable. The old dogma was the crudest materialism, wholly unworthy of the credence of those who pretended to believe that God was a spirit, and that they were his children. The belief in bodily resurrection was a natural concomitant of the age of sensualism before the mind and spirit had risen to their modern heritage. The desire for such a resurrection stamps the person with a self-confessed imperfection of mental and moral development. The impossibility of such a resurrection is one of many proofs that life is no sensualist at heart and that ideality is the final outcome, the trend of actuality. Nature compels us to take wings though the sluggish Psyche lingers lovingly in the pretty little cocoon of materiality she has built about herself.

Is it perhaps your understanding, reason, or intellect that you desire to perpetuate forever? Frankly, now, are you so in love with your mental outfit? In your more modest and sane hours are you not sadly conscious how very imperfect it is? While we are young and very conceited we may be filled with self-satisfaction and trust in our own judgment, but as the years drag by, we, looking back over the past, grow more and more conscious that our intellect is not to be trusted. Think of the interminable series of blunders of which your life is the

record ! How poorly you have misjudged people and circumstances ! How your reason has fooled you many times and again ! How many illusions and delusions you have lived through ! With what sad clearness you now see your former stupidities, and with what blindness you fail to see your present ones ! Looking about you, you find others equally as gifted as yourself holding your opinions as loathsome. Looking above you, you see the most intellectual and the most educated diametrically opposed in their opinions of God, man, and nature. Two great men, two brothers learned and trained in dialectic and logic, soon grow apart. One becomes a cardinal of the Romish church, accepting papal infallibility and a thousand such absurdities, the other as firmly convinced that the fallacies of the English church are God's gospel. Looking below you, you see the great mass of men wrecking their minds and lives upon a thousand outrageous beliefs and prejudices. There is no sadder spectacle in the world than this that the people love error. But each one with imperturbable conceit is convinced that he sees better and plainer than another. Every partisan democrat or republican has no sort of doubt that he is right about every financial or governmental measure, though he has never studied finance, history, or political economy five minutes. He does not dream that he is a dupe of the lousy politicians and of his own *lack* of intellect. All history is a tangle of such poverty-stricken intellection. One can but be amazed at the proneness of everybody to see things and do things every way but the right way. And this is the kind of a mental equipment you would stamp with the seal of eternity !

Possibly you may protest that it is a more perfect and purified intellect that you wish. Ah, yes, but that would not be your intellect. You want to be made over, made into another person. That would not be your immortality but that of another. That would imply that it is pure intellect and perfect, in the abstract, that you are interested in. Have you shown much interest in that sort of intellect in the past ? If you wish such an immortality of a perfected intellect you must certainly possess it before it can be made everlasting.

Perhaps, again, you will say that it is the ever-progressive ever-growing intellect you desire. This is subterfuge. That is not what

you wish but what you would take in default of your first choice. Lessing said that if God held out to him absolute truth in one hand and in the other the everlasting search for truth he would choose the latter. But the condition of everlasting search would be the condition of everlasting imperfection of intellect. Lessing's choice seems to me impious.

I therefore conclude, that at heart you do not wish to eternalise your crude imperfect intellect, and that the sole method of getting an exalted and perfected intellect is to cultivate it here and now. Have you in the past obeyed reason and not passion or self-interest? Have you studied logic, history, and science with a sincere desire to do your political and social duty, and to free yourself from prejudice, error, superstition, and conceit? If not why should God suddenly endow you with a perfect intellect ready-made? Is it God's way in this world, to give excellencies unasked and unearned? Rest assured he will not do it at your dying hour. It is no particular merit in you to die; why should you be rewarded with a new intellect then?

Or, again, you may say that it is not so much your intellect that you wish to make immortal as it is your emotional nature, affection, etc. Love and friendship, you complain, are cut off by death and the tendrils of the heart die because they find nothing to cling to or rest upon. You would like to renew beyond the grave the love and sympathy that has made the earth-life endurable, and even beautiful. Now is this, in very truth, just so? Are you really satisfied with your devotion and love? Have not your outgoings of the heart been quite fickle, illogical, selfish, and calculating? Has not your love and gratitude been often a lively sense of benefits to come? Has your love to woman not been of the "Kreutzer-Sonata" type, a little better and more subtly-concealed perhaps, but at heart the same? If you are a woman have you been seeking to get or to give love, and has your little affection been but payment for protection and a home? Have you chosen true and noble friends and been true and noble to them? Has your charity been but alms-giving without kind sympathy and helpfulness? Have you as married folk, perhaps, been, as the cant phrase has it, "devoted to each other," but oblivious of the duty of affection toward the rest of the world,—grinning

examples of *égoïsme à deux*? Is your family a fetich, an enlarged sort of selfishness? Do you at heart care much for anybody except your own precious self? And a too exclusive love, even of the purest type may be sin in God's eyes. If you bind all your affection upon one weak life you risk a precious value upon too single and narrow an object, and deprive others of the sympathy that need it more. "Just wrapt up in one," as the sentimental jargon has it, is often if not always a pleasant way of great sin. Affection may become morbid—a disease, quite as well as any abuse or exaggeration of any other characteristic.

I take it that they who are the most satisfied with the strength, purity, and constancy of their love and emotional nature are precisely they that have neither actual strength, purity, and constancy of sentiment, and are thus accurately they that should not have immortality.

Lastly, if neither body, intellect, nor the affectional nature are such as you wish made eternal, are you any better contented with your moral nature? The question at once raises a smile. The feeling of our own ethical unworthiness has crystallised into the great Christian dogma of Christ's vicarious sacrifice. In the words of the old hymn, "Jesus died and paid it all, all the debt I owe." No man hoped to get to heaven on his own merits. Much of the zeal of religion has consisted in the joy of the belief that by a sleight-of-hand trick, a big sponge of forgiveness was wiped over the ethical debit and credit account by the lachrymose deity, whose occupation, as Heine said, was to forgive. History is one long monotonous list of man's sins and inhumanities. I think it probable that you will not urge the ethical aspect; I would leave that plea aside. We all know that we are very much like a lot of pigs, each after the most and best corn and the warmest bed. The amazing immorality of trying to get to heaven on another's merits was the most brazen example of how little heavenliness there was in the heaven-hunters and heaven-scalers. Of course the desire for heaven itself, the desire for one's happiness was immoral when conditioned upon the misery of others. Nature in this respect is better than man, denying him his childish materialistic desires and forcing him to

wait for immortality until he can learn to live in the spirit and seek no selfish heaven.

Just as the body is ever changing, and it is impossible to seize upon any hour when we could eternalise it, except at the undesirable death-hour, so it is the same in reference to intellect, love, and morality. There are no two days in life when we are the same. As to intellect we have little before adult life is reached, and most people have little after fifty or sixty years. It is proverbial that no one changes his opinion after that age, but lives on old prejudices and ideas. The mental powers get into ruts and habits, true reason being abrogated. As to love we laugh at our fickleness, and our habits and ideals of friendship get sordid as each year strips off the freedom and expansiveness of youth and the dear cold ghost of self is more exclusively worshipped. And our ethical standards change with each day's passing. We have at every hour to clutch ourselves by the throat and cry, "Stay! Who art thou?" And lo! while we ask our protean self the question, we have become another. We seek perpetuity of existence for something ever becoming other. We seek personal identity after death, but we have no personal identity before death: how then can we have it afterward? Do you not see that what makes you recognisable, different from other individuals, and what would make personal immortality possible depends upon the accidents of organisation,—depends firstly upon the bodily peculiarity, and secondly upon imperfections of mind that you do not wish to perpetuate? Twins sometimes wear a knot of ribbon as a signal whereby their friends may recognise them. Our faces and bodies are but such little symbols or signals that our souls have hung out for the day. Divest your best friend of his body and would you recognise him? Have you ever thought how the photograph of your friend's soul would look? If bodily form and imperfections make up the most of what we call individuality it becomes evident that in casting off imperfection we become less narrow, less individual. As you become freed from the cramping littleness of self-love and the bonds of self-gratification, as you rise into the life of the spirit, you find yourself less individual. One fitted for a true heaven would not care for the old immortality. What is good to carry over

into the future life is not so much personal identity as personal non-identity, not so much the imperfections that make us individuals as the perfections that free us from individualism. We must lose our life to find it. We have overestimated the value of individuality. Self-consciousness has become hypertrophied, and the summum bonum of life is held to be the preservation of a little puckered-up individuality. This over-development of individualism is doubtless due to the fierce struggle man has had to elevate himself out of savagery. It has been possible only through excessive carefulness and love of the ego. The struggle for existence is now taking on class and corporate characteristics so that the common weal is an ideal quite as much as individual satisfaction and safety. Hence the exaggeration of personality may now return to something like a healthy normalism. As a natural outgrowth and consequence of this over-development of the individual consciousness, there came the absurd attempt to carry over into the after-life the same sort of existence that had been developed here,—consisting in a neglect of the actual world of one's descendants, an ignoring of death that ends the body and products of organisation, and a failure to see that a future life after death must be a life of the spirit, of perfections, and of the common life, not of peculiarities and imperfections. If this seems an airy height and a too rare air it argues against your preparation for the only desirable as well as the only possible kind of immortality. It argues against you just in the same way that your horror of death does. It is only participation in the divine life of the spirit that can see death as right and good. Death comes to shatter our baseless trust in the evanescent physical and teach us dependence upon the everlasting spiritual. They dread death whose life is of the physical type. God never gave to man a greater blessing, after life itself, than death, and nothing more strikingly proves the divine government of the world than the certainty of its coming to us all. If death is your enemy, life is not your friend. The brutal attempt to ignore the fact, the belief that the body with its pack of heathenish appetites and needs could push through death and come out fresh and renewed on the other side is the very insanity of individualism and the intoxication of

materialism. The mourning, shudder, gloom, and horror of death, —God-sent if anything is—is practical pessimism and reckless atheism. Death's one lesson is that we must love and cultivate what he cannot touch. One who has lived a life of kindness and spirituality has no horror of death, and to him it has little mystery. But to him whose divinity has been self and whose religion the worship of his physiological senses, death must be the ugliest of enemies who is to rob him of his all. Did you ever notice how life is plastic and free when first fashioning for itself a body? "All heaven lies about us in our infancy." In youth we are unselfish, aspiring, and noble. As the years go by the power of the organisation, the material grows, and limits more and more the freedom of the spirit. Frankenstein turns upon its maker. With age men get narrow, cold, calculating; women snakey, scheming, cruel. The soul finds itself more and more the slave instead of the master, and by and by when the slavery becomes unendurable, it takes flight, and this you call death. It is the body's reward for insubordination. I think we deserve little sympathy for dying. Most of us have well-merited death before it comes—I speak, of course only of the death of those in life's afternoon. Few keep the young life pliant and free beyond the age of fifty. If people could see that life is the maker and moulder of organisation, and if they would seek immortality upon earth, I believe men might come to live a hundred years. Trees learn to live thousands of years, but they keep youth, and spring, and trust, and love, forever nestling with the birds among the rejuvenescent leaves of spring. We die not because the body is weak, but because it has become too strong. We die because there is no real continuance and strength in anything but the non-physical, and we have trusted in the physical. Matter without free life is inert, moved only from without: the dead body is simply matter without life. It is not the blacksmith's arm that is strong: without nerve-force it cannot raise an ounce, cannot raise itself. Whence the nerve-force? From the ganglionic gray cells of the spinal cord and brain. And whence these little gray cells? The dear stupid physiologist has now reached his limit, and you can confidently answer for him that it

was Life created these things, Life that existed before muscles, nerves, and cells, and that slowly fashioned them; Life, an order of existence in no imaginable way analogous to, or to be confounded with matter or mechanics. There is in the history of thought no more ludicrous and dismal failure than the attempt to explain life in terms of mechanics. The hope of the materialist that science would prove his prejudice is torn to tatters. The children of the spirit are amazed at the bat-blind inability to see the fact,—to see that life is more certain and enduring than matter, soul than sense. The organs of the body are changed, diseased, die; the body itself dies; generations of bodies die, but like a containing cord of silk, on which all the glittering beads of flesh are strung, there is the soul, the life, ever the same, persisting unchanged through all change, giving unity to diversity, moulding, making, discarding, choosing, healing, working to far-away ends with blind, and dead, and obstinate materials. You love the flesh over-much and jealous life says to you, "Take it then, this so loved and wondrous flesh; me you have not loved,"—and lo! the dead body, useless, decaying, lies before you. Let no materialistic misreading of science hoodwink you into any blurring of the outlines between matter and life.* The two are as far apart as heaven and earth, are as dissimilar as thought can conceive,—perhaps in a final analysis, are the only two things of the universe. There is no fact of science showing the faintest warrant for confounding the two. Even Huxley calls materialism the most baseless of all dogmas. It will probably be found that there is but one element, of which all others are duplications and combinations, atoms being but centres of force. But life is irresolvable into any form of matter or mechanical energy. It is not only unthinkable that matter could originate life, but it is demonstrably absurd. No scientist to-day believes in spontaneous generation. *Omne vivum ex vivo* is an axiom. The plant has no nervous system and yet has every physiological function possessed by the human body. It has contractility, irritability, respiration,

* Those who think this view is the voice of faith and not of true science may profitably read a little book that has come to my notice since writing these pages: *Life Theories and Religious Thought*, by Lionel S. Beale.

anabolism, catabolism, and reproductivity,—that is, it has spontaneous movement, it responds to stimulation, it breathes, it assimilates, it excretes, it begets its like,—and physiologically this is all you can do. Nay, more than this, even a drop of the jelly-like protoplasm that makes up the basis of all cell-structures, animal or vegetable, has also all of these qualities or powers.* There are bundles of wholly structureless, unorganised jelly that exhibit these capacities in a wonderful degree. There is, for instance, *Hydra viridis*, that has no eyes and yet sees, no brain or nerves and yet lies in wait for prey, pursues and fights, or flees from danger. Turned inside out it lives and digests its food as well as before. It holds live worms down with an improvised arm when they try to get out of its stomach. Any part reproduces all. Cut off the bottom of its stomach and it goes on eating, quite untroubled by the little accident,—and so on. A great, wise, blind man has defined evolution, or life, as the integration of matter and the dissipation of motion during which the matter passes from an indefinite incoherent homogeneity to a definite coherent heterogeneity, and during which the motion undergoes a parallel transformation. Some one else improved upon this by saying that it was “a change from a no-howish, untalkaboutable all-alikeness, to a some-howish and in general talkaboutable not-all-alikeness, by continuous something-elsifications and all-togetherations.” Schelling said that life was the tendency to individuation. But the crystal or the planet shows that, and they are not living. As the hand cannot grasp itself, neither can life define itself. All definitions I have seen miss the essential and primal characteristics of spontaneous movement. But all definitions begin by begging the question,—assuming the thing

* According to the latest scientific researches the dependence of all organisation upon life is more clearly shown than ever. My friend Dr. Edmund Montgomery twenty-five years ago, as a result of extended experiment and research, showed that the body of animals is not an aggregation of cells, the force of the whole being derived from the enslaving and utilising these subordinate organisms, but that the whole body is a single protoplasmic living connected mass or unit with functionally specialised parts. That this view is the scientific view of to-day and that the cell-aggregate theory is dead may be seen by consulting the article “Zelle,” by Prof. Frommen in *Eulenburg's Real-Encyclopädie der gesammten Heilkunde*, 1890.

explained. The truth is that there is no definition or explanation possible. The dualism of matter and life must be accepted. There is no monism can bridge the gulf between mechanics and life. Inorganic matter with its inherent forces and laws cannot be conceived as ever coming into or as passing out of existence. From all eternity it was as it is, and so it will remain. The physical universe shows no hint of design, no glimpse of freedom, no trace of intelligence, no suggestion of a maker or God. It has no power of choice, no spontaneous motion. But the merest speck of living matter is utterly and absolutely different. It may have eyes or no eyes, and yet it sees, ears or not and yet it hears, nerves or not and yet it feels and reacts, brain or not and yet it thinks and plans, and acts in accordance with intellectual resolves. The dead body of your child is most inconceivably different from the living body of an hour ago. The one fundamental mystery of the explainable world is why life seeks objectification in material forms, and why it seeks it with such vehemence and ardor. Life seems to bite at matter as if with famishing hunger. One wonders if from some other planet life is being suddenly starved out or banished by some catastrophe, and as a consequence there is thence an over-emigration of the hungry Huns upon our earth. Certain confused and confusion-breeding philosophers in the interests of a theoretical monism or pantheism pretend to find, or to believe that the organic is born out of the inorganic, that the physical world shows evidence of design, that life and mentality were implicate and latent in pre-existent matter. Yet they will accept the evidence against spontaneous generation derived from the fact that if you kill all organic life by intense heat and then exclude life from without you will never find life to arise. But it is plain that in the condensation of the dust of space into suns and planets all organic life was killed in the hottest of all conceivable heat. But as the planets cool, life appears. It must have come from without, and must therefore be an universal self-existent power. Why, or how, or whence life comes to us we do not know now, but the transcendent miracle is ever before our eyes: infinitely rich and free, life is filling, thrilling, surcharging every molecule of matter to which with wondrous power

and ingenuity it can gain access. It covers every thousandth of an inch of the earth's surface, dives into the deepest ocean depths, fills the air as high as the mountain tops, ever unsatisfied, ever grasping up a million million renaissant forms, never resting, never baffled. Before this omnipresent god one stands in rapt amazement and worship. To matter, then, life first brought, and still ever brings the power of organisation, of adaptation, of spontaneous energy, and of movement. But when the death of the organisation takes place, the life that preceded and formed it is not lessened or affected. When the watch wears out does it prove that the watchmaker is dead? It is more rational to suppose that the watchmaker has kept on with his work, that he has made and will make many more watches, and I therefore judge that the life of each of us, that existed before our bodies, that formed our bodies, will still form other bodies after ours. The Oriental doctrine of the transmigration of souls is not to be accepted in its crude details, but it is doubtless a great truth. It is more rational and more consonant with what we know of life, than the theory of wasted life implicate in the barbaric notion of sending numberless millions of souls to hell to do nothing but suffer useless pain, and other millions to heaven to suffer (I use the word advisedly) useless pleasure. Any theory of immortality that rests upon the assumption of uselessness and waste may be quickly set aside. Just as matter and force are indestructible, various forms of force being interchangeable, so it must be with life. There must be a conservation of life-energy just as rigid, and this truth must remake and remould the whole conception of immortality. When a mechanical force disappears in one phase, it at once reappears in another aspect. So vegetable, animal, and mental life are but different aspects of life-force, and suffer no loss when transformed one into the other, or when the body disappears altogether. And as it is the inherent nature of force never to rest so there is no rest for life. Banishment of life to a heaven of inaction is as impossible as it is absurd.

This extension of the law of the conservation of force to things biologic and psychic is a two-edged sword: it offers conclusive evidence of the fallacy of the materialist and unbeliever. There is no

annihilation; your life at death not only may not stop but cannot stop. Life is as inextinguishable as physical force. On the other hand this sword deals the death blow to two equally shallow fallacies of believers. Just so sure as it insures the preservation of your life, of all that is worth preservation, just so sure it denies the possibility of preserving what was bound up with and produced by organisation,—that is individuality and personal identity. These things, if not entirely, are certainly largely the products of your peculiar physical and physiological organisation. Whatever is born of the flesh must perish with the flesh; what is born of the spirit shall inherit eternal life. But the profoundest and most distinguishing rebuke is given the unscientific, puerile, selfish assumption of the waste, loss, and uselessness of life involved in the old theory of heaven and hell. When from a chemical compound you take away and liberate one element or compound radicle, does it then shoot off into space, to “flock all by itself” for eternity? By no means! It at once rushes into a new combination with its nearest neighbor, quickly picking up again the round of its duty and function. The curious notion that after having done work in one body, life or souls should at once rush off to some far-away star, there to sing or howl for eternity was a childish absurdity. One wonders where even an omnipotent God could get material for such an amazing manufacture and loss of souls. The theory also forgot that logic demands that what should live forever in the future must perforce have lived forever in the past. A rope if it have one end, must have two ends. What, therefore have our souls been doing during this past eternity? The truth is that absolutely speaking there cannot be souls, but only soul. Life is a unit, and indivisible. The tiniest bit of bioplasm holds and represents all of life. Neither you nor it are separable from the whole. There may be education and progressive evolution of life as a whole but there can be no individual and selfish salvation apart from the salvation of all other souls. The idea that release from the body at once releases a soul from action, duty, and the work of life, is an illogicality that could have arisen in no mind conversant with the demonstrated law of the non-wastage of force in any work of energy elsewhere. Life is

never tired ; it is the body that requires rest not the spirit. The old doctrine of heaven, an eternity of laziness, was the sigh of the sluggish flesh whipped to ceaseless work by the unresting life. The desire of heaven was the desire of eternal death.

This extension of the idea of the non-wastage, the rigid conservation and interconvertibility of force to things of life, gains a new significance and grandeur when we consider that whatever proves the immortality of man proves the immortality of every other animal or vegetable form. The tree and horse have a soul quite as well as you, and must live after death quite as surely as you will. It is the flimsiest of conceits that makes men think they are endowed with a special sort of soul or divine life, different from that of animals or plants. Don't flatter yourself. God takes quite the same loving pains and care in the elimination of a leaf that he does of a brain-cell. Man is but a small part of the animal world, and the whole animal world is but a small part of the total life of the globe. Don't despise the vegetable kingdom : it can do something you cannot do—make living matter out of mineral substances. You could not live a day without the food furnished you by "your brothers, the plants." Hence if human life or souls cannot be sent off into space to do nothing, neither can the souls of animals and plants. If we are to have our heaven they must have theirs also. Does not this tangential theory begin to be clumsy and work with huge creakings and difficulties? It looks like *reductio ad absurdum*.

Not only is the tangential theory contradictory of all physical analogies and all known laws, but it is positively immoral. It is but a refined selfishness. Worldliness is none the less sinful because it is other-worldliness. If billions of souls could thus be wasted in an eternity of useless pain or pleasure, could thus, drunken with individuation, hug their own sweet ghosts for never-ending time—then were life a farce, the universe a huge meaningless machine for grinding out waste and useless souls. But if all life, past or future, is one and indivisible, purposive, educational, then the world becomes full of meaning and the face of the Father, Life, smiles out at us from every living thing. The faith of all good men that goodness is at the heart of things is justified. The Earth becomes our

home, that we can love; our Father ever dwelleth here; we cannot be banished. When we have finished our task, when our body has worn out, tireless life, of which we are the children and heirs, gives us here and now other work to do.

To matter, this tremendous cosmical game of incarnation can mean nothing. We see the dead flesh break up into simpler chemical forms and the atoms finally spin off unaltered by their flesh-dance, again to be caught up by the mystic and unseen Master, again to be pressed into organic forms,—forms that like empty sea-shells only show where life has been. And so on forever. But to life some educative purpose must be operative through it all. Life that made eyes must see more than eyes; life that made brains must know more than brains. There is doubtless pain and strain; but is there to be no ultimate justification? We may catch glimpses of reasons. Do we not see an increase both of quantity and quality of life in geologic times? Is life trying to do away with death and heredity? Are they but makeshifts, death but a discarding of too obstinate material? Birth but a retempering and reworking of the same material? Heredity but the temporary means of passing life and its experiences onward until death and birth shall be found unnecessary in a growing command of chemical and physical forces that shall banish old age out of the world? There is no inherent reason why a body should grow decrepit. If it can be made to preserve its suppleness for fifty years why not for a thousand? It may transpire that the dream of an elixir of life may come true through scientific progress despite the savage death-blow given it by Brown-Séquard. The more sin, selfishness, and wrong there is the shorter is the average length of human lives. If you will look into the rich and awful science of statistics you will find proof of this in every class of society. When we apply ourselves to enrich and lengthen our life-time with the same zeal we now use in killing each other—when the endowments of the world's scientific schools equal the cost of the world's armies then there will be a very different life-table found in the insurance-offices.

Finally with mournful echoing recurrence comes the old question: How much of individuality persists and passes untouched

through death's fingers? How far does the graduate life carry with it the results of experience? I would answer: all that you ought to desire, all that is best, all that you will want when you fully understand how little and poor is individuality and that there is something including it and far better. I have a strange inability, personally, to understand the to me absurd hunger after personal identity. It appears to me a childish obtuseness of character. The great and glorious freeness and largeness of life, the decentralised, impersonal quality of it seems to be unappreciated. I do not see how people can fail to understand that personal identity is not only impossible, does not exist now and here, but that the desire of it is the renunciation of progress. We grow and advance only by change, only by breaking up identity and becoming other. Think also of the lack of identity or individuality in nature. There is no personality and individualism there, and yet there is something that includes personality and is much more. There is will, consciousness, intelligence, life,—but not identity or individuality. So the life that is the heart of us invites us to leave our little self and find a larger self. Religion is our *yes* to that invitation. Materialism and pessimism is the saying *no* to it. The immortality that is alone possible or desirable is the losing our life, the individual identity-loving life, again to find it as the impersonal but richer, deeper life of nature and God. God denies you an immortality of individualism and identity because he loves you so well that he refuses you your crude childish desire in order to offer you something infinitely better. People do not seem to see how narrow, small, and partial is the dissociate speck of the individual, and that as an individual progresses in all the virtues of character he evermore becomes proportionally less individual and less centralised, always more like the divine prototype of his impersonal father, Life. The love of individualism is the love of imperfection. This may to some seem a hard doctrine. It is not perhaps an easy task for the butterfly to break its way out through the million-fold bonds of its cocoon, but when risen into the large air and sunshine does it regret the birth-struggle? They who think they are being cheated of reality for a metaphysic illusion will find in breaking through the bonds of flesh that they also

have brought with them splendid wings for rising in the no less real but rarer air of spiritual trust in life. It is not that we love less the thousand ties of flesh, home and kindred, but that in recognising the paternity and fraternity of all life, we find love commensurate with that life. I do not think there was any cold stony harshness in the face of Jesus when he uttered those most profoundly significant of all words, "Who is my mother, and who are my brethren? Whosoever shall do the will of my Father, the same is my brother, and sister, and mother." What a recall to the common life of the spirit! What unity with the common life based upon loving obedience to the will of the Father. What a wonderful rebuke of the love of individualism. He did not love his mother less but humanity more. The more we rise into that impersonal atmosphere the more are we careless of the fate of personal identity. The composite photograph shows the fundamental and enduring quality, the average feature. In a certain sense life and history are taking humanity's composite photograph; but, inordinately-loving individualism, each sitter conceitedly demands that his own picture be left untouched and unblurred by that of the others, and that his poor little portrait shall stand alone and forever—precisely what the divine photographer does not wish and will not permit. Obstinacy persists and God smashes the negative to the ground with the unanswerable argument called death. Because it is more than metaphor that in many ways your body may be likened unto a photographer's negative: created, for example, by the in-flashing of a heavenly ray of light among the highly unstable chemicals of matter; useless, except as an intermediate step to a clearer showing of the character; black and invisible unless shone through by the pure light of life and love; fragile as glass,—and lastly the poor, weak, shadowy, dead counterfeit of a throbbing, marvellous, living reality. The hunger for an immortality of the body, of the senses, the lust of immortality, is, in empty fatuousness, only comparable to the mania of a crazy photographer interested only in his negatives, and who never "develops" one, or to the foolishness that values photographs more than the friends themselves. If we once get our spiritual eye fixed upon the deep reality and unity hidden by the

Maia-veilings of individuality and flesh, the cravings of our weak hearts for eternal continuance of our little bundle of littlenesses, would fall away from us as softly as the wayward longings of childhood. We could then see that it is the quality of all life, the progressive purity, power, and increase of life in the abstract, that become all-important. Religion would become the love and veneration of Life the Father of us; morality the cheerful obedience of the individual to that Father; Heaven the re-entrance of the individual life into the great unity. Much of the old religion was irreligious; its God a far-away dead abstraction, not a living, ever-present love; its immortality was at heart a desire for death, its spiritualism at heart a barbaric materialism. To this death of faith and irreligious religion, comes the sympathetic study and love of nature—that is, science—and reveals to us the opulence of life, the infinity of intellect in nature, the inexhaustibleness of her resources and of her diversity, her beauty, and her splendor. The old materialistic degradation of religion forefelt its doom would come from this spiritualistic revivification, and the devotees cried out against science as atheistic. And science found some foolish enemies in her own camp who, misreading their divine book, joined in the cry—"Nothing but mechanics." It was a dismal short-lived croak. We now see that not only are science and her workers religious, but without scientific knowledge there can be no adequate idea or practice of religion. You can't love God unless you love and know what he is doing in this universe. The man who in a walk goes neglectfully and obliviously by a million mysteries and wonders that God has been toiling to eliminate for ages,—such a man cannot lay much claim to God's friendship. If we love our friend, we have some interest in the deepest concern of his life. The foolishness of all fears is the fear that science is somehow going to destroy all good things of faith and life. In truth it reveals all good things. It demonstrates and manifests both God and immortality,—God as the Father of all life, immortality as the surety of the conservation and non-wastage of that life. Much of the fear of science, is as I have said the fear of the old materialistic religion in presence of the larger faith that burns up its beloved errors. They who had been promised and had

argued themselves into a groundless belief in the value and immortality of a bundle of sensual appetites, selfish desires, and imperfections saw far in advance that any large study of life and nature would dash their wretched faith to atoms. And science has overridden this unfaithful faith. "He that soweth to his flesh shall of the flesh reap corruption ; but he that soweth to the Spirit shall of the Spirit reap life everlasting." This is as true scientifically as it is true morally and religiously.

It requires but a little study of neurology and psychology to give demonstration to this truth. The products of organisation die with disorganisation. Most, if not all, of what people mean by individuality and personal identity is a product of organisation, is an accident of incarnation. Children are similar to each other ; they are lovable partly because idiosyncrasy and individualism haven't yet developed. As we grow older we cultivate individuality, until the very old are usually angular, cranky, individual with a vengeance ! Death, thank heaven, is the end of that, the certainty of a non-eternalising of the imperfect. Birth is a new trial. Incarnation and reincarnation are the ever-renewed work of Life. Through the laws of heredity, through physiology, sociology, and biology, science is tirelessly illustrating to us how all life holds together, how individualism is valueless, and sacrificed to the common weal. There is no escape, sensual or supersensual from the world's great common life. The old selfish dream of a heaven apart from incarnation, from doing and becoming was a pitiful mistake. You cannot clutch your cake of happiness and like a spoiled child run into the attic of heaven to eat it alone. Life will see to it that you do not slip off. And if you have been born again of the spirit you will have no such desire, but will beg for kindred work upon the old earth-home.

In the meantime the conclusion is clear : to love and aid the work of our master Life we need not wait for death. We may not seek our own salvation ; it is no matter whether you and I are saved or not. The reincarnation of life is our work here and now. It took you twenty years to fashion out of a microscopically-small speck of unorganised protoplasm your body and brain. Within us we are to keep that organisation from cramping and binding the life,—keep

life as large and free and pliant as possible. Outside of us the incarnation goes on as well, and every person you influence either for good or for ill, thus by the fact, becomes a product of your incarnating work. Every day you have a hundred opportunities to give, without lessening your own supply, some of your own life, to increase the quantity and to elevate the quality of the general stock of the world's life. Help the young, they inherit the world and will use it well or ill according to your teaching and example. Stop cruelty to animals, they are your brothers, filled with the same life as your own; fight the political ruin we are preparing for ourselves by partisanship, bribery, and class-legislation; discourage war and intemperance and lessen the tyranny of the strong and wealthy. Wage a ceaseless war to the death against luxury, the poison that is eating and rotting the hearts of all of us; love trees, meadows, clear brooks, the mountains and silences of Nature. Love, not so much your own or another's individual life, as Life itself. There is otherwise no immortality.

The divine story tells us that after measureless suffering and self-purification, Buddha had gained the right to enter Nirvana. With compassion filling his heart he put his merited reward aside and resolved to remain without to teach and to help until every child of earth should have become his disciple, and until every disciple should have entered Nirvana before him. Such must be the resolve of every true lover of life and of every right seeker after immortality.

GEORGE M. GOULD.

SOME QUESTIONS OF PSYCHO-PHYSICS.*

SENSATIONS AND THE ELEMENTS OF REALITY.

I HAVE read Dr. Carus's article "Feeling and Motion"† with care, and have also perused Clifford's essay on "The Nature of Things in Themselves." Let me attempt to present the points in which our agreements and differences consist.

To begin with, I state with pleasure that the monistic tendency of both endeavors is in the direction that appears to me to be the true one and that is most likely to afford elucidation. Consequently, agreement in matters of detail is of subordinate importance and is only a question of time.

Let me cite, first, a few passages from "Feeling and Motion" to which I give my full assent. They are the following:

"The interconvertibility of motion and feeling is an error."

"Feeling is real as much as are matter and motion."

"Its reality accordingly is most immediate and direct, so that it would be ridiculous to doubt it."

"Man's method of understanding the process of nature is that of abstraction."

"Every concept is formed for some purpose, and every concept by serving one purpose necessarily becomes one-sided. . . . We must bear in mind . . . (1) the purpose it has to serve, and (2) that the totality of things from which abstractions can be made

* This article is the substance of a private communication from Prof. Ernst Mach to the Editor of *The Monist*—published in the present form with Prof. Mach's consent. Translated from Professor Mach's MS. by Thomas J. McCormack.

† *The Open Court*, Nos. 153 and 154.

is one indivisible whole. . . . We must not imagine that the one side only is true reality."

Some years ago I should also have agreed *in toto* with the passages in which Dr. Carus speaks of the animation of all nature, and of the feeling that accompanies *every* motion. To-day this form of expression would not, it seems to me, correctly characterise the matter. If I were now prematurely to advance a definitive formulation, I should fear lest, so far as myself and perhaps others are concerned, important aspects might remain concealed.

I shall next cite the passages with respect to which I do not agree with Dr. Carus, and then I shall endeavor to state wherein our differences of opinion consist:

"All series *A B C* . . . are accompanied by $\alpha \beta \gamma$." [The *A B C* . . . series of Dr. Carus has a different meaning from mine.]

"We may represent *motion* or we may represent *mind* as the basis of the world, or we may conceive them as being on equal terms." [I cannot agree with a co-ordination of "motion" and "mind."]

"They [viz. feeling and motion] are as inseparable as are the two sides of a sheet of paper." [Fechner says, "As inseparable as the concave and convex sides of the same circle." This appears to me an inapposite simile in so far as a *duality* is predicated where in my view a *unity* alone exists.]

My view of the problem is as follows: We have colors, sounds, pressures, and so forth (*A B C* . . .), which, as simplest component parts, make up the world. In addition thereto, percepts (resolvable into $\alpha \beta \gamma$. . .), feelings, and so forth, more or less composite. How $\alpha \beta \gamma$. . . differ from *A B C* . . . I will not define here, for I do not know exactly. It is enough for the time being that they do differ from *A B C* . . ., as the latter do from one another. And let us now leave $\alpha \beta \gamma$. . . entirely out of account and put ourselves in a time and state in which there are only *A B C*. Now I say, that if I see a tree with green leaves (*A*), with a hard (*B*), gray (*C*) trunk, that *A B C* are *elements* of the world. I say *elements*—and not sensations, also not motions—because it is not my purpose at this place to arrive at either a psychological or a physiological or a physical *theory*, but to proceed *descriptively*. The every-

day man, indeed, takes greenness, grayness, hardness, or complexes thereof it may be, for constituent parts of the world—for he does not trouble himself about a psychologico-physiological theory—and does not learn moreover anything more about the world; from his point of view he is right. Similarly, for the descriptive physicist the question is also one merely of the dependencies of $A B C \dots$ on one another; for him too $A B C \dots$, or complexes thereof, are and remain constituent parts of the world.

If, however, I close my eye (K), withdraw my feeling hand (L), $A B C \dots$ disappear. If I contemplate $A B C \dots$ in *this* dependence they are my *sensations*. This is but a special point of view within the first.

According to my conception, therefore, *the same* $A B C \dots$ is both element of the *world* (the “outer” world, namely) and element of *feeling*.

The question how feeling arises out of the physical element has for me no significance, since both are *one and the same*. The parallelism stands to reason, since each is parallel to itself. It is not *two* sides of the same paper (which latter is invested with a metaphysical rôle in the simile), but simply the *same* thing.

A perfect physics could strive to accomplish nothing more than to make us familiar beforehand with whatever it were possible for us to come across *sensorily*; that is, we should have knowledge of the interrelation of $A B C$. A perfect psychology would supply the interrelation of $\alpha \beta \gamma$. Leaving out of account the theoretical intermediaries of physics—physiology and psychology—questions like “How does feeling arise from motion” would never come up. However, the artificial inventions of a physical or psychological theory, must not be introduced into a general discussion of this character—for they are necessarily “one-sided.”

I may now set forth my differing point of view with regard to the idea of “motion.” A motion is either perceptible by the senses, as the displacing of a chair in a room or the vibration of a string, or it is only supplied, added (hypothetical), like the oscillation of the ether, the motion of molecules and atoms, and so forth. In the first instance the motion is *composed* of $A B C \dots$, it is itself merely

a certain relation between $A B C . . .$, and plays therefore in the discussion now in hand no especial part. In the second instance the hypothetical motion, under especially favorable circumstances, can become perceptible by the senses. In which case the first instance recurs. As long as this is not the case, or in circumstances in which this *can never happen* (the case of the motions of atoms and molecules), we have to do with a *noumenon*, that is, a mere mental auxiliary, an artificial expedient, the purpose of which is solely to indicate, to represent, after the fashion of a model, the connection between $A B C . . .$, to make it more familiar to us. It is a thing of thought, an entity of the mind ($\alpha \beta \gamma . . .$). I cannot believe that this is to be co-ordinated with $A B C . . .$ in the same way as $A B C . . .$ among each other are. Putting together motion and feeling goes as much against me as would say the co-ordination of numbers and colors. Perhaps I stand quite alone in this, for physicists have accustomed us to regard the motions of atoms as "more real" than the green of trees. In the latter I see a (sensory) fact, in the former a *Gedankending*, a thing of thought. The billions of ether-vibrations which the physicist for his special purposes *mentally annexes* to the green, are not to be co-ordinated with the green, which is given immediately.

When a piece of zinc and a piece of copper, united by a wire, are dipped in sulphuric acid and deflect a magnetic needle in the vicinity of the wire, the unprepossessed *discoverer* of the fact discerns naught of motion beyond the deflection of the needle and the diffusion in the fluid. Everything reverts to certain combinations of $A B C$. Electricity is a thing of thought, a mental adjunct; its motion another; its magnetic field still another. All these noumena are implements of physical science, contrived for very special purposes. They are discarded, cast aside, when the interconnection of $A B C . . .$ has become familiar; for *this last* is the very gist of the affair. The implement is not of the same *dignity*, or reality, as $A B C . . .$, and must not be placed in the same category, must not be co-ordinated with it where general considerations are involved to which physics with its special objects does not extend.

The green (A) of the tree is not only adjoined to the presence

of the sun (B), but also to the deflection of the needle (X), by my optic nerve. Familiarising intermediary connections to-day by motions, to-morrow by some other means, is the business of the special sciences, and can only disturb and obscure a general discussion. What should we say of a cosmology from a pharmaceutical point of view? In principle, this very thing is done, it seems to me, when physical augers and saws are employed in all fields of work, as is universally the case.

So much for the juxtaposition of motion and feeling. Perhaps I alone am right, perhaps I alone am wrong.

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According to my conception accordingly "material" processes are not "*accompanied*" by "feelings," but are *the same* ($ABC\dots$); only the relation in which we consider them makes them at one time physical elements and at another time feelings.

The relation in which "percepts" and "feelings" as distinguished from "sensations" stand to sensations, is not clear to me. I am much inclined to regard these feelings as a species of sensation (co-ordinate with sensations). How the representative percepts of imagination and memory are connected with sensations, what relation they bear to them, I dare venture no opinion. The relation of $\alpha\beta\gamma\dots$ to $ABC\dots$ is the point regarding which I do not feel sufficiently sure. Regarding $ABC\dots$ (world of sense in its objective and subjective significance) I believe I am clear.

Dr. Carus in a private letter to me says: "It almost seems as if you transform all $ABC\dots$ series into the corresponding $\alpha\beta\gamma\dots$ series."

This is not the case. I designate by $\alpha\beta\gamma\dots$ representative percepts (not sensations), and say simply that $ABC\dots$, *the same* $ABC\dots$, play, according to circumstances, now the rôle of physical elements, now the rôle of sensations. I call $ABC\dots$, therefore, *elements*, pure and simple.

Mine is not the Berkeleian point of view. The latter has been mistakenly attributed to me time and again, the separation that I make of $ABC\dots$ from $\alpha\beta\gamma\dots$ not having been sharply discriminated and it not having been borne in mind that I call

$A B C \dots$ alone *sensations*, not however $\alpha \beta \gamma$. Clifford, with his "mind-stuff," approaches very near to Berkeley.

Monism, as yet, I cannot thoroughly *follow out*; because I am lacking in clearness with regard to the relation of $\alpha \beta \gamma \dots$ to $A B C \dots$; which can only be supplied by further physiologico-psychological investigations; but I believe that the first step towards a competent monism lies in the assertion that the same $A B C \dots$ are both physical and psychical elements. As regards the psychical "accompanying" the physical, the question *How?* continually recurs. Either they are two incompatible things (Du-bois) or their relation is bound up in a third thing ("thing-of-itself"). By viewing the matter as *two sides* of the same thing, not much more is gained, to my mind, than a momentary satisfaction.

All non-monistic points of view are, in my opinion, artificial constructions, which arise by investing with very far-reaching extensions of meaning psychological or physical special-conceptions, which have a limited value, applicable only within the department in question for the elucidation of the facts of that department. The overvaluing of psychological conceptions leads to spiritualistic systems, the overrating of physical conceptions to materialistic systems. Naturally in the latter systems *motion* plays a great rôle; for through a mistaken conception of the *principle of energy*, people have come to believe that everything in physics can be explained by motion. But explanations by motions have, as a matter of fact, nothing to do with the principle of energy. The majority of physicists, it is true, believe and disseminate this opinion. If, when a physicist speaks of motion and nothing but motion, the question is asked *What moves?* in ninety-nine cases out of a hundred nothing palpable or demonstrable is brought forward in answer, but hypothetical atoms or hypothetical fluids are adduced which execute motions still more hypothetical. Even in the domain of physics itself, the business of which is to proceed from the sensory and to return to the sensory, I can regard these "motions" at best only as provisionally tolerated intermediaries of *thoughts*, that have no right to be ranked on equal terms with reality, let alone placed above it.

Still less can I allow "motion" the right to create a world-

problem where none exists, and thereby to conceal the real point of attack in the investigation of reality.

I may add that some years ago I took exactly Dr. Carus's point of view, which I presented in a lecture on Psycho-physics published in 1863 in the *Oesterreichische Zeitschrift für praktische Heilkunde*.

With regard to Clifford I may make the following remarks. The notion "eject" pleases me very much. I have long had the idea in mind, but have not defined it because its limitation is not clear to me; nor has Clifford given me any light on the subject. Is the representation in us of the material nature of things we *cannot lay hold of* (the sun, the moon) to be called an eject? Are the abstract concepts of physical hypotheses, which in their very nature can never become sense-affective, ejects? Such things are abstract in widely differing degrees, and are bound up with the sensory in very unequal proportions; the impossibility of becoming sense-affective is partly absolute, partly only relative, that is, it exists for the time being.

I do not at all agree with Clifford's notion "mind-stuff"; in this I wholly concur with Dr. Carus. It is not unbiased philosophising to come down in the end to a *psychological* notion as *comprehensive of the world*,—a notion on the face of it pre-eminently one-sided.

* * *

In connection with the subject under discussion, I might incidentally make mention of Mr. Charles S. Peirce's article "The Architecture of Theories" in the last number of *The Monist*. One Mr. Peirce, a mathematician,* has made some very valuable investigations, similar to Grassmann's. This author's view of the evolution of natural laws does not strike me as so singular. If predominance be given in our conception of the world to the spiritualistic or psychical aspect, the laws of nature may be regarded as tremendous phenomena of memory; as I attempted some years ago to set forth in a lecture of mine. The idea of their evolution is then very near at hand. Of course I do not think that for the time being we can gain much light from this view. For the present the "scientific method" in

* Mr. Benjamin Peirce, father of Mr. Charles S. Peirce.—ED.

the grooves of which we have moved for three hundred years, continues to be the most fruitful. It is advisable to be very cautious in advancing beyond this. It is for this reason also that I do not think very much of the fruitfulness of the idea that the entire world is animated and feeling. We have as yet too little insight into the psychical, and still less into the connection between brain-organisation and brain-function and psychical process. Of what advantage to us is the assumption of feeling in cells in which every clue is missing by which to proceed from the psychical assumed to the physical connected with it. It seems to me that the physical and psychical investigation of sensations is for the time being the only thing that can be entered upon with any prospect of accomplishing anything. In this we shall first learn the proper formulation of questions that are to form the subject of further investigations.

ERNST MACH.

SOME QUESTIONS OF PSYCHO-PHYSICS.

FEELINGS AND THE ELEMENTS OF FEELINGS.

EXPOSITION.

WHEN a man who has done so much valuable work for the progress of science as Professor Ernst Mach finds it necessary to change the position he has taken,—a position which has appeared to many thinkers as a satisfactory solution of the most intricate problem in the philosophical and psycho-physical field,—there must exist in the solution some difficulty which has either been overlooked or at least too little appreciated. If there is a flaw in it, I wish it to be exposed. And convinced that its discovery must be of general interest, I take pleasure in publishing Professor Mach's criticism of the view which I have defended in a former article of mine.

The main source of most differences, it seems to me, springs from misapprehensions. I shall therefore attempt to elucidate the subject with reference to the objections presented by Professor Mach.

The main idea set forth in my article "Feeling and Motion" may be briefly recapitulated as follows. Our feelings are phenomena which to an observer who could see all the processes taking place in our brain, would appear as motions of a special kind. Motions and feelings are two aspects of one and the same reality. But feeling cannot be explained as transformed motion. Accordingly, the elements of the conscious feeling which now exists and now disappears, must have existed before. The presence of elements of feeling must be an additional feature of the processes

Recapitulation.

of nature not included in the term motion, and not observable in motions, yet inseparably bound up in motions. Or, in other words, feelings and the elements of feeling are the subjective aspect of what objectively appears as and is called motions.

The term "elements of feeling" employed in this sense has been adopted from Clifford. The idea that feelings and motions are two aspects of one and the same reality has been held by several psychologists, among whom are the founders of the science of psycho-physics, especially Fechner.

I. MOTION AND FEELING.

Professor Mach says: "Putting together motion and feeling goes as much against me as would, say, the co-ordination of numbers and colors."

The putting together of two concepts depends upon the purpose of our investigation. Motion and feeling, in spite of their disparity, have one quality in common which justifies their juxtaposition. Both in their spheres are terms of the most general circumscription.

By feelings I understand those features of our experience which constitute what may be called the awareness of the present state.. Feeling comprehends all the many degrees of awareness in pleasures and pains, sensations and thoughts, emotions and ideals. It constitutes the subjectivity of our existence and furnishes the basis of all psychic life. Feeling is the most general term of its kind.

By motion I understand all kinds of changes in the objective world that can either be directly observed or are supposed to be observable. Indeed all changes taking place must, objectively represented, be thought of as motions.

Feeling and motion being each the broadest concept of its kind, the question, In what relation do motions stand to feelings? appears to be quite legitimate.

* * *

Concerning the relation that obtains between feeling and motion, Professor Mach objects to the use of the expression "feeling accom-

panies motion." "Material processes," he says, "are not accompanied by feeling, but both are the same." And in another passage, "The parallelism stands to reason, since everything is parallel to itself."

I grant most willingly that the term "accompany" is inadequate, and I admit that a certain feeling and a certain motion form one inseparable process. There is no duality of feeling and motion, both are different abstractions made from one and the same reality. I do not say that feeling and motion are identical, not that they are one and the same; but I do say that they are one. There is no such thing as pure feeling; real feeling is at the same time motion. Feeling by itself does not exist in reality. Pure feeling is a mere abstraction. And wherever the expression parallelism between feeling and motion has been used, it can mean only a parallelism between the two spheres of abstraction.

The term "accompany" inadequate.

Professor Mach continues: "They [motion and feeling] are not two sides of the same paper (which latter is invested with a metaphysical rôle in the simile), but simply the *same* thing.

For the same reason Professor Mach objects to Fechner's comparison. Yet it seems to me that Fechner hit the mark when he compared feeling and motion to the inside and the outside curves of a circle; they are entirely different and yet the same. The inside curve is concave, the outside curve is convex. If we construct rules relating first to the concave inside and then to the convex outside, we shall notice a parallelism in the formulas; yet this parallelism will appear only in the abstractions which have been made of one and the same thing from different standpoints and serving different purposes. The abstract conceptions form two parallel systems, but the real thing can be represented as parallel only in the sense that it is parallel to itself. If we consider the real thing, it represents a parallelism of identity. There is but one line, and this one line is concave if viewed from the inside, it is convex if viewed from the outside.

Fechner's simile

The simile which I introduced of the two sides of one and the same sheet of paper was devised to convey no other meaning than this construction of Fechner's comparison. The paper is invested

with a metaphysical rôle only in the case where the simile is otherwise construed. There is no page which exists of itself as a mere mathematical plane independent of the paper of which it forms a side. Thus there can never be in reality a page without its counterpage. The paper, its size and color, belong to the page and constitute its properties.

Thus the abstraction 'feeling' represents my looking at the one side of reality. I leave, and from the subjective standpoint I have to leave, the other side out of account. Yet the other side of the sheet is inseparable from the one at which I am now looking, just as much as feeling is inseparable from motion. And I am constrained to admit the truth of the reverse also: motion is inseparable from feeling, but with the limitation that motions need not be on their subjective side actual feelings; they may be only elements of feeling which under certain conditions become actual.

I am aware that my comparison of feeling and motion to the two sides of one sheet of paper may be easily misinterpreted. But is not that a danger to which all comparisons are subject? A comparison is always imperfect, or as the Romans used to say, it limps: "Omne simile claudicat." And is not reality liable to be misinterpreted in the same way? Have not some philosophers thus introduced the metaphysical explanation of the unknowableness of things in themselves? Such philosophers conceive the two sides of a sheet of paper (the abstract mathematical planes of the pages) as phenomenal and the paper as their metaphysical essence. The size of the sheet, the color of the paper, and all its other qualities are in a metaphysical world-conception represented as properties of which the thing is possessed—not as constituting the thing, but as essentially different from it.

It appears to me that Professor Mach in spite of his opposition to Fechner's simile and to the expression that feeling and motion are two aspects of one and the same reality, entertains the same view. At least his words: "Only the relation in which we consider them makes them at one time physical elements, at another time feelings," are to that effect.

II. SENSATIONS AND THOUGHTS.

The difference between Professor Mach's view and mine may appear greater than it is, because the problem which Professor Mach treats in his article "The Analysis of the Sensations," lies in quite a different field from that of the problem of the relation of feeling to motion. The problem being different, the same and similar terms are not only used for different purposes, but demand also different comparisons. Professor Mach's symbols $ABC \dots$ and $\alpha\beta\gamma \dots$ represent a contrast different from that of feeling and motion. They represent the contrast of sensations and thoughts. Sensations, such as green and hard, are colors, pressures, tastes, etc; thoughts are memory-images, concepts, volitions, etc.

Professor Mach's
problem.

Professor Mach says: "How the representative percepts of imagination and memory are connected with sensations, what relations they bear to them, as to this I dare venture no opinion. . . . Monism, as yet, I cannot thoroughly follow out; because I am lacking in clearness with regard to the relation of $\alpha\beta\gamma \dots$ to $ABC \dots$; but I believe that the first step towards a competent monism lies in the assertion that the same $ABC \dots$ are both physical and psychical elements."

My symbols $ABC \dots$ and $\alpha\beta\gamma \dots$ represent the contrast of physical and psychical elements, not of sensations and thoughts. Concerning thoughts, Professor Mach says he is much inclined to co-ordinate them with sensations so that his Greek symbols might differ from his Italic symbols not otherwise than the latter, viz. $ABC \dots$, differ among themselves. Taking this ground, I believe, it would be preferable to symbolise them accordingly among the Italic letters, perhaps as XYZ . In the diagrams on page 407 they are called $M\mu$, $N\nu$, $S\sigma$.

According to my terminology, feeling, as explained above, is the most general term expressing any kind and degree of subjective awareness. A sense-impression is a single irritation of one of the senses, the irritation being a special kind of motion plus a special and correspondent kind of feeling. A sensation is a sense-impression that has by repetition acquired meaning. A

Feeling, sense-im-
pression and sen-
sation defined.

later sense-impression, when felt to be the same in kind as a former sense-impression, constitutes, be it ever so dimly, an awareness of having to deal with the same kind of cause of a sense-impression; thus giving meaning to it. By sensation, accordingly, I understand a sense-impression which has acquired meaning. And feelings that have acquired meaning, I should call mental states. Representative feelings (feelings that have a meaning) are the elements of mind.

By thinking I understand the interaction that takes place between representative feelings. Such are the comparisons of sensations with memory-pictures, or of memory-pictures among themselves, the experimenting with memory-pictures so as to plan new combinations, etc. The products of thinking are called thoughts; and by thought in the narrower sense is commonly understood abstract thought which on earth is the exclusive privilege of man.

If I am not mistaken Professor Mach understands by sensations (represented by him as $A B C \dots$) what I should call sense-impressions; while thoughts, memories, and volitions (represented by him as $\alpha \beta \gamma \dots$) form what I should call mind, or all kinds of mental states, that is, the domain of representations.

The higher spheres of thought, or representative feelings, grow out of and upon the lower spheres. Sense-impressions, as I have attempted to explain in the article "The Origin of Mind" (*The Monist*, No. 1), are the data which are worked out into concepts and ideas; they are the basis upon which the whole structure of mind rests. The reflex motions of simple irritations, being modified in higher spheres by the rich material of experience consisting of memory-images, and by the possibility of forethought created through experience, become volitions.

A monistic explanation of the rise of mind from elements that are not mind is possible only on the supposition that the objective processes of motion are not mere motions but that they are at the same time elements of feeling.

Is this not the same position as Professor Mach's, where he says that "the first step towards a competent monism lies in the assertion that the same $A B C \dots$ are both physical and psychical ele-

ments"? and again: "The same ABC ... are both elements of the world (the 'outer'* world namely) and elements of feeling."

Considering the two last-quoted sentences of Professor Mach, it appears to me that all differences vanish into verbal misunderstandings. Yet since I am not at all sure about it, I may be pardoned for becoming rather too explicit. The adjoined diagram may assist me in making my ideas clear.

Agreement with
Professor Mach.

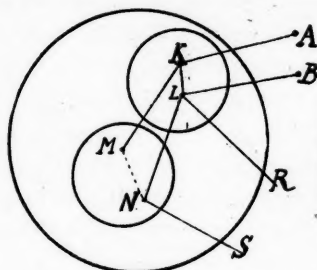


Fig. I.

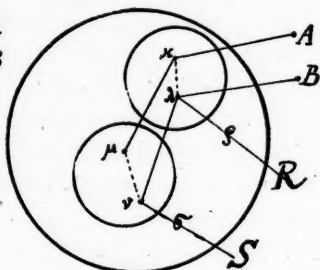


Fig. II.

Let the large circle of both figures represent a sentient being, a man. The periphery is his skin. The small circle enclosing K and L is a sensory organ; the other small circle enclosing M and N represents the hemispheres of his brain. A and B are processes taking place outside of the skin of this man. A produces an effect in K ; B in L . The line R represents a reflex motion. M and N are concepts and abstract ideas derived from such impressions as K and L . The line S represents an act of volition.

Explanation of the
diagrams.

All these symbols represent motions in the objective world. We know through physiological investigations that K , L , M , and N are motions; in our individual experience they appear as feelings.

The second figure represents in agreement with my system of

* Professor Mach here says "outer world." I should prefer to replace it by the expression "objective world," because the motions of a man's brain belong to the outer world of all other men. To make sure of including the actions of my own body in this outer world, I should prefer the term "objective world," making feelings alone (to the exclusion of the subject's own motions) the constituents of the subjective world.

symbols the states of awareness, in Greek letters. Certain physiological processes (KLR, MNS of Figure I) appear subjectively as states of awareness (i. e. $\kappa\lambda\rho, \mu\nu\sigma$ of Figure II). Yet A and B remain to the thinking subject mere motions. If they possess also a subjective side, although only in the shape of potential feeling, it does not and it cannot appear.

Professor Mach calls green, hard, etc., which in a certain relation are our sensations, "the elements of the world."

Sensations not elementary. These processes characterised as "green," "hard," etc., are in my opinion too special and at the same time too complicated to be considered elementary. I grant that they are elements of mind, because if further analysed, they cease to be mental phenomena. But they are not elements *per se*, not elements of the world. It remains doubtful to me whether Professor Mach understands by his term "sensation" only $K\kappa$ and $L\lambda$ or the whole relations $AK\kappa$, and $BL\lambda$. Taking it that he represents $ABC \dots$ as both elements of the world and sensations, it almost appears certain to me that his term "sensation" stands for the whole process $AK\kappa$, and that he considers the scientific analysis of this process into A the outside thing, into K the nerve-vibration corresponding in form to the outside thing, and κ the feeling that takes place in experiencing the sense-impression AK , as an artificial procedure that serves no other purpose than that of familiarising us with certain groups of elements and their connections. The processes $AK\kappa, BL\lambda$, in that case would be considered by Professor Mach as the actual facts, while the A and B , the K and L , the κ and λ represent mere abstract representations without real existence, invented by scientists in order to describe the realities $AK\kappa, BL\lambda$, etc., with the greatest exactness as well as economy of thought. In their separate abstractness they are the tools of science only and we must not take them for more than they are worth.

If this be so, I understand Professor Mach very well and I agree with him when he looks upon all M and N with their
Thoughts as mental implements. respective μ and ν as being "noumena, *Gedankendinge*, things of thought." They are mental tools. Sense-impressions are realities, but mental representations are implements; they are

auxiliaries for dealing with realities; they are "the augers and saws" employed in the different fields of cognition.

Professor Mach says in his article "The Analysis of the Sensations": "When I (the ego) cease to perceive the sensation green, when I die, then the elements no longer occur in their customary, common way of association. That is all. Only an ideal mental economical unity, not a real unity, has ceased to exist." The term sensations, it appears to me, can in this passage be interpreted neither as $K\kappa$ only, nor as the whole relations $AK\kappa$, but as any $ABC\dots$ relations; and since Professor Mach has not excluded from them the element of feeling, I should have to represent them by $A\alpha, B\beta, C\gamma\dots$. Sensations as I understand the term (viz. $AK\kappa, BL\lambda$), are elements of mind; if they are further analysed they cease to be mental states. Says Professor Mach: "If I close my eye (K) withdraw my feeling hand (L), $ABC\dots$ disappear. In this dependence $ABC\dots$ are called sensations." Should we not rather say, they cease to be sensations, if this dependence ceases? Accordingly, sensations and sense-impressions are for this and for other reasons not indecomposable, not ultimate atoms. The elements of mind can be further analysed into the elements of the elements of mind. The elements of mind do not persist; but the ultimate elements of the elements of mind, whatever they are, do (or at least may) persist.

When speaking of the elements of the elements of mind we cease to deal with objects of actual experience as much as a physicist or chemist does who speaks about atoms. Nevertheless the analysis is as legitimate in our case as it is in the chemist's. If in the above quoted passage I am allowed to replace Professor Mach's term "sensations" by elements of sense-impressions, I should not hesitate unreservedly to accept his idea. These elements of sensations would be all kinds of natural processes, all kinds of motion. They would be physical actions which are not mere motions but also and at the same time elements of feeling.

It is true that abstract concepts, and especially scientific terms and theories, are mere contrivances to understand the connections among, and the qualities of, real things. Ideas are not the real things,

but their representations, and some ideas are not even representations; they are solely of an auxiliary nature and comparable to tools. They are used as working hypotheses wherever the real state of things is in part hidden from us, until we have found the actual connections. As soon as the actual connections are found we can and must lay down our tools.

In a certain sense all words and concepts are tools for dealing with the realities they represent. But some words are tools in a special sense. They have been invented for acquiring a proper representation.

Professor Mach says: "The implement is not of the same dignity or reality as $A B C \dots$ " It appears to me that these implements (if they are of the right kind) have almost a higher dignity (although not reality) than the material to which they are applied. My respect for tools is very great, for tools are the most important factors, perhaps the decisive factors, in the evolution of man. The usage of tools has matured, nay created the human mind, and words,—scientific and abstract terms and theories not excluded,—are the most important and most sacred tools of all.

Some ideas, it is true, have to be laid aside like tools that are no longer wanted; but there are other ideas which we cannot lay aside, because they have more value than the ideas of a mere working hypothesis. Some ideas are indispensable and will remain indispensable; we shall always have to employ them in order to represent in our mind the connection between certain facts. If we see a train pass into a tunnel and emerge from it at the other end, we will connect in our mind these two sensations by the thought of the train's passage from one end to the other. This idea is not a sensation; it is a noumenon. Shall it therefore be called a *mere* noumenon, a tool that has to be discarded as soon as we are accustomed to expect a train to emerge from the one end of a tunnel soon after it has disappeared into it at the other end?

There are scientific concepts which, for some reason or other, can never become objects of direct observation; they can never become sensations. Nevertheless we must think them together with certain sensations as indispensable connect-

Ideas as contrivances for comprehension.

The dignity of mental tools.

Noumena legitimate, if representing realities.

ing events taking place behind the stage and hidden from our eyes. Our conception of a train hidden from sight in a tunnel, it is true, is a noumenon, but it is a legitimate noumenon, it represents a reality. So also many scientific ideas, although undoubtedly things of thought, are legitimate noumena. If they contain and in so far as they do contain nothing but formulated features of reality or inevitable conclusions from verified and verifiable experiences, these things of thought represent something real, which means that if we were in possession of microscopes of sufficient power, or if we could look behind the veil that hides them from our sight, we should see them, just as we should see the train if the rock through which the tunnel leads were transparent.

III. THE ORIGIN OF FEELING.

Concerning the origin of feeling Professor Mach says: "The question how feeling arises out of the physical element has for me no significance." I agree that we cannot ask how feeling arises out of the physical element. But feeling being a fleeting phenomenon, to propose the problem of the origin of feeling *has* a significance.

Some physical elements—namely, those of our own body—are indubitably possessed of the subjective phenomena of feeling. And as to certain other physical elements, Physical elements with and without feeling. observable in our fellow creatures, that is in men and animals, no one would think of denying their presence either. But there are physical elements which we regard as bare of all feeling. The wind that blows, and the avalanche that plunges into the valley are not supposed to be feelings. Yet the energy of the wind and the energy of the avalanche may be utilised and ultimately stored up in food. The food may be changed into human energy and then the element of feeling appears as if called forth out of the void. We agree that feeling has not been changed from motion. But if feeling was not motion before, what was it? Feeling cannot be a creation from nothing. Consequently it must in its elements have existed before. Feeling, namely actual feeling, must be regarded as a special mode of action of the elements of feeling. If all that which we can observe

in motion, all that which the term motion comprises, constituting the objective changes taking place in nature, contains nothing of feeling or of the elements of feeling, we must yet attach to every motion the presence of this element of feeling.

That the potential subjectivity of the physical elements, namely
Elements of feeling not observable. the elements of feeling, cannot be seen, as motions can be seen and objectively observed, is not a reason that militates against this view; for it is the nature of all subjective states to be felt only by the feeling subject. If all feelings are objectively unobservable except by their correspondent motions, the elements of feeling can form no exception to the general rule.

* * *

Professor Mach says: "Some years ago I should have agreed
The animation of all nature. *in toto* with the passages in which Dr. Carus speaks of the animation of all nature and of the feeling that accompanies every motion."

Let me here emphasise that I have termed nature "alive"
Nature not all feeling. not in the sense that every motion is supposed to be accompanied with sensation, nor with any kind of feeling, but with an element of feeling only. I am aware that the term element of feeling may be easily misunderstood, and it seems advisable to guard against such misconceptions. Actual feeling I suppose originates from the elements of feeling similarly as an electric current originates under certain special conditions. Sulphuric acid dissolves zinc and sets energy free which appears in the copper wire as electricity. It is an instance of the transformation of potential energy into kinetic energy.

To use the expression "elements of feeling" is no more or less
The term "elements of feeling" inappropriate. allowable than to speak of the stored up energy from which electricity is produced, as elements of electricity. The latter expression is inappropriate, because we are in possession of better terms, because our range of experience in the subject is wider. But suppose that among all molar and molecular motions we were only acquainted with electricity and knew nothing of potential energy, could we not for want of a better word form the term "elements of electricity"?

The elements of feeling should not be supposed to be feelings on a very small scale. The elements of feeling may be and for aught we know are as much unlike actual feelings as mechanical motion, or chemical dissolution is unlike electricity. The essential features of feeling may be, and I believe they are, produced through the form in which their elements co-operate. Similarly the different pieces of a clock and the atoms of which it consists contain nothing of the clock; and if we should call the heaviness of a weight, the swinging property of the pendulum, the tension of the spring, etc., etc., elements of chronometry, it might appear ridiculous, because we know so many other processes, viz. all different ways of performing work, for which these qualities can be used. The action of a spring, of a suspended weight, of a mere pendulum are not by themselves elements of chronometry; they become a chronometrical arrangement only by their proper combination with a dial and hands attached, and by being correctly regulated in adaptation to temperature and many other conditions.

* * *

It is not plausible that the earth, when in its gaseous state, was the habitation of any feeling beings, and it is actually impossible that it harbored feeling beings as they exist now. Feeling accordingly must have originated, and the question how feeling originates is a problem that suggests itself naturally to the psychologist as well as the philosopher.

The kinetic energy liberated in our actions, in brain-activity as well as muscular motions, is produced from the potential energy stored up in our tissues. This energy, *qua* energy, is the same energy which we meet everywhere in nature. All kinds of energy are interconvertible. Yet we must bear in mind that the vital energy displayed in animal organisms is a special and indeed a unique form of energy. It is as different from other forms of energy as is, for instance, electricity from molar motion.

Vital energy a
unique form of
energy.

In former times physics and chemistry were considered as applied mechanics, and physiology as applied chemistry. This position, however, is wrong and had to be abandoned. Mechanical, chemical, physiological, and psychical

Physiology and psychology not applied mechanics.

processes exhibit radically different conditions. The student of mechanics, the chemist, the physiologist, the psychologist, each one of them attempts to solve a different problem. They accordingly deal with different sets of abstractions. The processes which constitute the subject-matter of the physiologist's and psychologist's work are different from those of the mechanical philosopher and of the chemist. The abstraction of the so-called purely mechanical excludes such processes as chemical combinations; it is limited to molar mechanics only. The term molecular mechanics is an attempt at widening the domain of mechanics. But the terms of neither molecular nor molar mechanics contain anything of the properly physiological nature observed in vegetal and animal life. The latter is a very complicated process which may briefly be described as assimilation of living forms. The laws of molar and molecular motions are not annulled, yet they are superseded; they remain, yet some additional important traits appear. Different conditions and complications show different features and the characteristics of organised life are not the molar or molecular mechanics of their motions but their properly physiological features.

Mechanical laws accordingly cannot explain physiological action, and still less have they anything in common with ideas, or thoughts, or feelings. Accordingly, the attempt to apply mechanics to any other than mechanical considerations is *prima facie* to be rejected. We must never forget that all our scientific inquiries deal with certain sides of reality only.

The abstractions of the mechanical philosopher as well as those of the physiologist and psychologist are one-sided as-
The higher view of the whole. pects only of reality. Yet it is quite legitimate to take a higher standpoint in order to classify our notions so that the general views comprise the special views and to determine the relations among the several in their kind most general views. In this way we can shape our entire knowledge into an harmonious world-conception representing the whole as a whole. This I tried to do when, following the precedent of Fechner and Clifford, I proposed the problem of the origin of actual feelings from the non-feeling elements-of-feeling, the former depending upon a special combination or form

of action of the latter, and the latter being a universal feature of reality.

When we observe some very simple process in nature, e. g. the fall of a stone, we represent it as a motion. We formulate the operation of the stone's fall into a law, describing its mode of action as it holds good in all cases of the same kind. But the motion observable and representable in our mind is not all that takes place. There must be some additional feature which in a further development will appear as man's consciousness.

The additional
feature in a
stone's fall.

To regard the fall of a stone as only a very simple instance of essentially the same process that takes place when a man does an act, i. e. performs a motion accompanied with consciousness, appears at first sight strange or even absurd. But we cannot escape the assumption that in a certain respect it is the same thing. We are inevitably driven to adopt this monistic conception of things by inexorable logical arguments; and we are supported in it by the observation of natural processes.

Human action develops by degrees out of other natural processes, and we have sufficient evidence to believe that humanity with its civilisation, science, art, and all its ideals—so far as the energy alone, spent in human activity, is considered—is but a differentiation of natural forces that has come to pass on the cooled off surface of the earth under the influence of solar heat. Man is transformed solar heat. All the forces animating the planetary system are differentiations from the heat of which our solar system was possessed when in a nebular state. And what is the heat of which nebular masses are possessed? It is the motion of celestial bodies, of comets, or of so called world-dust, changed by collision into molecular motion.

Human activity and
energy.

But in human activity there is some additional element, that of purely subjective awareness, which is neither energy in itself nor can have been transformed from energy; it must have existed potentially. Accordingly we assume that also in the more primitive processes of nature there is some additional element which in its full development appears as feeling and reaches its highest stage known to us, in the consciousness of man.

IV. THE ORIGIN OF ORGANISED LIFE.

There is a very original view concerning the origin of life advocated in this number of *The Monist* by Dr. George M. Gould in his article on "Immortality."* The problem of the origin of life (namely, of organised life) is so closely connected with the problem of the origin of feeling, that the one cannot be solved without solving the other. Feeling such as we are familiar with is an exclusive property of organised life and a few incidental remarks on Dr. Gould's proposition will therefore not be out of place.

In introducing here the views of Dr. Gould in a discussion with Professor Mach, I am fully aware of the great difference that obtains between the two. While Professor Mach's thought moves in an outspoken monistic direction, Dr. Gould presents a bold dualism, attributing to all life, to the lichen on the withered rock no less than to the human soul, an extramundane origin. Why should we not then rather adopt the more consistent theological supernaturalism which attributes to inorganic nature also an extramundane origin, thus to realise by a short cut a complete unitary world-conception?

Dr. Gould's proposition is contained in the following :

"Certain confused and confusion-breeding philosophers, in the interests of a theoretical monism or pantheism pretend to find, or to believe, that the organic is born out of the inorganic, that the physical world shows evidence of design, that life and mentality were implicate and latent in pre-existent matter. Yet they will accept the evidence against spontaneous generation derived from the fact that if you kill all organic life by intense heat and then exclude life from without you will never find life to arise. But it is plain that in the condensation of the dust of space into suns and planets, all organic life was killed in the hottest of all conceivable heat. But as the planets cool, life appears. It must have come from without, and must therefore be a universal self-existent power."

* It cannot be denied that many ideas set forth by Dr. Gould in his presentation of the problem of immortality contain a deep truth. The brilliant and forcible language in which the author treats his subject is admirable. But the passages on the externality of life present a conception which stands in direct opposition to the views that have been editorially upheld in *The Open Court* as well as the *Monist*.

The idea that "life must have come from without" is not quite clear. Does Dr. Gould mean "from without our planetary system, out of other planetary systems"? If so, the same objection holds good: In other planetary systems also when they were in a nebular state "all organic* life was killed in the hottest of all conceivable heat." Shall we perhaps consider the cold interstellar regions as the place whence life does come? And if "from without" means "from without the whole universe," we should be driven back to the old supernaturalistic dualism which regards nature as dead and life as a foreign element that has been blown into the nostrils of material forms so as to animate them.

Dr. Gould proposes his theory of the external origin of life, with great confidence, in the name of modern science. Must we add that modern science is very far from sustaining his view? Professor Clifford touches the subject of spontaneous generation in his article "Virchow on the Teaching of Science." He says:

"Why do the experiments all 'go against' spontaneous generation? What the experiments really prove is that the coincidence which would form a *Bacterium*—already a definite structure reproducing its like—does not occur in a test-tube during the periods yet observed. . . . The experiments have nothing whatever to say to the production of enormously simpler forms, in the vast range of the ocean, during the ages of the earth's existence. . . . We know from physical reasons that the earth was once in a liquid state from excessive heat. Then there could have been no living matter upon it. Now there is. Consequently non-living matter has been turned into living matter *somehow*. We can only get out of spontaneous generation by the supposition made by Sir W. Thompson, in jest or earnest, that some piece of living matter came to the earth from outside, perhaps with a meteorite. I wish to treat all hypotheses with respect, and to have no preferences which are not entirely founded on reason; and yet whenever I contemplate this

simpler protoplasmic shape

Which came down in a fire-escape,

an internal monitor, of which I can give no rational account, invariably whispers 'Fiddlesticks!'"

*Dr. Gould does not seem to make a distinction between "organic" and "organised." We should here prefer the expression "organised life." Carbon is an "organic substance" but not an "organised substance." A cell and its protoplasm, however, are "organised substance."

Suppose, however, Dr. Gould's assumption were accepted, suppose that life had come from without, matter were of itself lifeless, and life, the "self-existent power," had ensouled some dead organic substances so as to cause their organisation, would we be any wiser through this hypothesis? The assumption instead of diminishing the difficulties in the problem of life, would increase them. New questions arise: What must this "self-existent power" be conceived to be? Does it exist without a physical basis (to use Professor Huxley's phrase)? How does it differ from energy? Is not all power energy of some kind? And are not all kinds of energy interconvertible? Has this self-existent power the faculty of changing other energy into itself, into life, or is it only supposed to utilise it? In the latter case it would be a *Ding an sich*, not in but behind the functions of organisms; and in both cases it would form an exception to the law of the conservation of energy, for "the self-existent power of life" would be an ever-increasing power. One life-germ only may have come from spheres unknown into the universe, and by utilising the mechanical energy of the material world has animated at least our earth, and may animate in a similar way all the globes in the milky way. That life-germ, however,—if it was anything like a real life-germ, such as our naturalists know of,—must have consisted of organic substance. What a strange coincidence, that outside of the world also organic substances are found! Life-germs are not simple substance, but highly complex organisms. Accordingly, the question presents itself, How has this life-germ been formed? What conditions in another world radically different from ours have moulded it and combined its parts into this special life-germ so extraordinarily adaptable to our material universe? Or must we suppose that the first life-germ was formed out of the cosmic substance of our universe by a non-material spark of life, (whatever life may mean,) that had dropped in somehow into the material world from without?

If life is a self-existent power, why does it always appear dependent upon and vary with the organisation, which it is supposed to have formed? Why has life never been observed in its self-existence? So far as we have ever been able to observe life, it is

matter, organised and organising more matter. All the difficulties disappear if we say, Life does not produce organisation, it is organisation.

* * *

Dr. Gould, in appealing to the latest scientific researches as proving "the dependence of all organisation upon life," especially mentions his friend Dr. Edmund Montgomery and also Professor Frommen's article "Zelle" (Eulenburg's "Realencyclopädie der gesammten Heilkunde," 1890). Now it is true, as Dr. Gould says, that "the body of animals is not an aggregate of cells." It is as little a mere aggregate of cells as a watch is a mere aggregate of metal, or as a hexagon a mere aggregate of lines. The body of animals is an organism; which means, it is an interacting whole of a special form built of irritable substance. A highly complex organism is not and cannot be considered as a compound of its diverse organs, but as a differentiation. Its unity is preserved in the differentiation, yet this unity does not exist outside of or apart from the differentiated parts.

I fully assent to Professor Huxley's proposition, approvingly quoted by Dr. Gould, that "materialism is the most baseless of all dogmas." I also believe in the *omne vivum ex vivo*; but I do not consider it with Dr. Gould as an axiom, nor can I accept the consequence which Dr. Gould derives from it, "that life [viz. organised life] is more certain and enduring than matter, soul than sense." It is true that "matter and life" are "as far apart as heaven and earth." Farther indeed, for they are two abstractions of an entirely disparate character. No passage through spatial distance, be it ever so large, could bring both concepts together. They are and remain as different, as is for instance the idea expressed in a sentence from the ink with which it is written. Ideas contain no ink and ink contains no ideas. Yet this does not prove that ideas exist by themselves in a ghostlike abstractness apart not only from ink, but also from feeling brain-substance. Nor does the disparity of the terms life and matter prove the abstract or independent existence of life outside of matter.

If life for some such reasons as hold good only in so far as they

refute the old-style materialism, could or should be considered as being some self-existent power having come into the world "to bite" at matter, we might also consider the hexagon as a something that came into the mathematical world from without. The hexagon cannot be explained as a mere aggregate of lines, accordingly hexagonity must be a self-existent power; it must have come from without, utilising lines for its hexagonic existence.

Organised life must have originated from non-organised elements by organisation, and thus a new sphere is created which introduces new conditions. The laws of organised life are not purely mechanical laws, nor physical laws, nor chemical laws, but they are a peculiar kind of laws; just as different as chemical laws are from purely mechanical laws (the latter not including such phenomena as are generally called chemical affinity).

Natural laws are formulas describing facts as they take place under certain conditions. Accordingly if special conditions arise we shall have a special set of laws. Monism assumes that all the laws of nature agree among themselves; there is no contradiction among them possible. Yet there may be an infinite variety of applications. The processes of organised life are not mere mechanical processes. The abstractions which we comprise under our mechanical terms do not cover certain features of vital activity and cannot explain them. Physiology is not merely applied physics; it is a province of natural processes that has conditions of its own and the physiological conditions are different from physical conditions. This however does not overthrow monism. We believe none the less in the unity of all natural laws and trust that if the constitution of the cosmos were transparent in its minutest details to our inquiring mind, we should see the same law operating in all the different provinces; we should see in all instances a difference of conditions and consequent thereupon a difference of results that can be formulated in different natural laws, among which there is none contradictory to any other.

EDITOR.

LITERARY CORRESPONDENCE.

I.

FRENCH PUBLICATIONS.

WHY do we sleep? Some have said, through cerebral congestion; others, through cerebral anæmia. In reality the question remains undecided. M. S. SERGUEYEFF has attempted to resolve it in his scholarly lectures published under the title of *Le Sommeil et le Système nerveux, Physiologie de la Veille et du Sommeil*.^{*} He considers it under a new and very general point of view.

According to him, wake and sleep would be the two alternating phases of one and the same function, necessarily vegetative, and absolutely indispensable to life. Sleep would respond to an assimilation; wake to a dis-assimilation.

To this vegetative function, nevertheless, it is necessary to assign an aliment, an organ, a mechanism. Now as yet we know of only two material forms of assimilative activity, the one semi-liquid for digestion, the other gaseous for respiration. The aliment of sleep would be, as opposed to this, an ethereal matter, or, if we wish, a dynamic form, susceptible of being accumulated and of being transformed in various ways. At first sight, no doubt, it seems difficult to accept a sthenic aliment, without a ponderable substratum, and it sounds a little strange to seek in the phenomena of wake and sleep "an assimilative group the object of which belongs to the ambient dynamism," in other terms, "a functional activity," which

^{*}In two thick octavo volumes. Alcan, publisher.

should be influenced by the condition of the alimentary source—that which would give at the same time the explication of the fact, that, in a general way, the two phases of wake and sleep are related to the planetary periodicity of day and night, summer and winter. Let us, however, follow M. Sergueyeff in his interesting researches, where the scientific spirit does not cease, at any rate, to sustain him.

In his theory the cerebro-spinal system is no longer the organ, as it is in the theories of congestion and anæmia; but it is rather the so-called sympathetic elements, the ganglio-epidermic system, of which the imperfectly known functions rightly require to be explained. Struck with the insufficient reasons given of the phenomenon of caloridity resulting from the section of a sympathetic nerve, or from the obstruction of a ganglion, M. Sergueyeff has been led to assume an action of the great sympathetic, different from the vaso-motor action. He does not hesitate, in order to explain the caloridity, to admit into physiology the principle of the mechanical equivalence of heat. He endeavors to prove, by an ingenious argument, that the heat which is produced after the section of the sympathetic nerves, finds its immediate origin in the arrest of a nervous centripetal movement; that this arrested movement owes its existence to dynamic condensations, to which certain organs of the ganglionic system are adapted, being endowed with a condensatory capacity; and finally that in the normal state the movement represents, not an expenditure of energy, but a contribution, that is to say, it is a movement of a trophical character.

The sanguineous condition of the brain remains to be considered; but the difference in this respect between wake and sleep, would be purely distributive instead of being quantitative. Schiff has remarked that white rats deprived of their cerebral lobes and corpora striata sleep and wake; which leads us to think that the phenomena of cerebral irrigation are consequentials, and not essentials, of wake and sleep. In short, these two alternating phases serve in turns as chief moving causes for the vaso-motor excitation which differences, in one or the other period, the sanguineous condition of this or that medullar locality.

We cannot follow the author in the special study he makes, first

of the sensitive nerves and the motor nerves, then of the "cerebral activities" in the conditions of wake and sleep. It would be laborious to disengage his psychological doctrine from the long discussions which envelop it, and which, well carried out as they may be, do not always allow it to appear with as much distinctness as could be wished. We will note only the care that he takes to restore the *psychic initiative*, contrary to the theories most in favor to-day. He supposes a prefunctional movement of the sensitive nerves, in order to determine the sensorial impression; "attentive volitions" in order to explain attention, voluntary or involuntary. According to him, the physiological phenomenon which necessarily corresponds to sufficient attention, that is to say to the laying hold of an object by consciousness, can only be a volitional nervous movement. He remains convinced that "the cells of the brain must project incessantly in certain of their afferent fibres centrifugal influxes which tend to meet with perceptive images"; and feeble and involuntary as these influxes may be, he ranks them nevertheless in the somewhat mysterious category of so-called attentive volitions. These are not reflexes, but automatic movements. And definitively, every act of attention belongs to the category of volitional movement, be it involuntary or voluntary; or in short, "attentive volition exists prior to its voluntary strengthening."

As to the revival of images, it is necessary to admit the intervention of a previous tendency to association. The difficulty remains then to know how we are to be able to keep these images before the consciousness, in order to apply our attention to them, and what secret cause has power to arouse the signals, the nervous movements, which present them to it. The author resolves the difficulty by accepting, for cases of intentional reviviscence, *ideo-motor* volitions, to which he attributes a considerable rôle; their intervention distinguishes precisely, says he, the active memory from the passive memory.

In reality, for M. Sergueyeff the consciousness is not, as we have said, a simple result of the image, an epiphenomenon; it is permanent (thus he affirms that we always think, that we always dream); the *Ego*, the *We* is for him an irreducible factor. This way

of looking at things has evidently influenced the choice of his terminology, more than it has vitiated his analysis, and its conclusions, moreover, he has not put down to the credit of any system of metaphysics whatever. Far from having exhausted the matter of his book, which is replete with criticisms and facts, I have hardly sketched its outlines, and I should be his false interpreter if I did not recall, in conclusion, the hope strongly expressed by himself, that the great assimilative work of an imponderable aliment reserves for us many other solutions beyond that of the phenomena of wake and sleep. "Though it may be," says he to his hearers, "that in all the recent words I have uttered, the truth shines only by a spark, do not disdain this spark, gentlemen. May one of you receive it within him, for it can, I have the confidence, by a more powerful breath than mine suddenly increase, like a polar aurora, and illuminate unbounded horizons."

* * *

We now come to a book of less scope, rudely constructed perhaps, but very instructive. As indicated by the title chosen by him, *La Psychologie de l'Idiot et de l'Imbécile*,* DR. PAUL SOLLIER has attempted to draw the portrait of the idiot and the imbecile *in general*; which I sincerely approve of persuaded as I am that we shall find profit in sketching generic types and in tracing the composite photographs of social individuals grouped in various ways, in order to establish on solid basis a "natural history" of societies. The novelists have approached this difficult enterprise at random; it is for the psychologists to direct it with a method more sure and a tact not less delicate.

Idiocy is not always congenital; the lesions which produce it are extremely varied and do not consist by any means in a simple arrest of development. In short, idiots form a very diversified clinical group; and here was the first difficulty necessary to overcome in order to write their psychology. Profiting by the insufficient definitions that authors have given of idiocy, M. Sollier thinks he is able in his turn to define it as "a chronic cerebral affection with

* Alcan, publisher.

varied lesions, characterised by troubles of the intellectual, sensitive, and motory functions, going possibly as far as their almost complete abolition, and which assumes its special character, particularly in what concerns intellectual troubles, only in the youthful age of the subjects it strikes." Then, discussing the proposed classification, he stops to form three categories, which he connects with the intellectual development, for which attention serves him as the touch-stone. They are: (1) absolute idiocy—complete absence and impossibility of attention; (2) simple idiocy—feebleness and difficulty of attention; (3) imbecility—instability of attention. These differences in the state of attention (we recognise the fruit of the excellent teaching of M. Ribot) separate with sufficient clearness the imbecile from the idiot: the latter remains extra-social, the former becomes anti-social. M. Sollier, for whom the imbecile, let us say in passing, is an exceedingly disagreeable personage, follows out throughout the whole of his book this distinction, which seems to us one of the most curious and the most piquant aspects of it. How many people in the world border on imbecility, without belonging clinically to this type, and maintain the mischievous rôle of destroyers and marplots!

Readers familiar with the study of mental maladies will not be astonished to find among idiots the following signs of degeneracy: dulled senses, obtuse perceptions, a poor condition of sensibility and consequently of mobility, and anomalies or perversions of the instincts, sentiments, etc. But that which makes of them a group apart, is the constitution of the perfect type from infancy, while among the degenerates properly so-called, the perversions, the manias, etc. present, are the episodic concurrences of a morbid evolution which unrolls itself capriciously in the course of a whole life.

M. Sollier has interesting remarks nearly everywhere in his book. We may refer, for example, to what he says concerning pity, courage; of writing; of hereditary organic memory; of ideas, etc. It is curious, certainly, to see idiots suddenly show themselves skilful in playing an instrument which was that of their father and of their grandfather. A passing observation on impressionability, greater for color in girls and for form in boys, deserves to be devel-

oped: I regret that the author should have been sparing of details on this point as on some others. M. Sollier appears, we may say, to have aimed not so much at giving new explanations in psychology, as at verifying those which have been proposed by good authors. He is precise, positive; from the medico-legal point of view, he presents practical conclusions, and does not embarrass himself in sentimentalism, from which the *Philosophie pénale** of M. TARDE, let it be said parenthetically, is not always sufficiently free.

A word more with reference to the "great suggestibility" of imbeciles, on which M. Sollier reasonably insists. Since I spoke in this place, three months ago, of the work of M. Bonjean, the awkward intervention of M. Liégeois in the Eyraud-Gabrielle Bompard case has contributed to compromise the Nancy school, much more than to serve it. M. Brouardel is able to object with ingenuity that certain persons, supposed to be victims of hypnotism, unfortunately obey suggestions "which are the most agreeable to them." It is good advice to be cautious. Still it is necessary to take into account (it is what I had omitted to say) the character of the subjects, in order to be able to judge of the possible accomplishment of acts suggested in sleep. For, it is not doubtful that among the abnormal, the imbecile, the mentally feeble, one could not count much on the revolt of a moral personality which is not constituted, on the efficiency of a power of inhibition which is almost null, and that generally criminal suggestion can become formidable when it is attended by bad instincts.

It remains to speak of a work by M. A. RICARDOU, *De l'Idéal, Etude philosophique*.† I avow without any disguise that I have not taken any interest in it. M. Ricardou declares himself a deist, spiritualist; the misfortune is that he follows so much the vague and wavering manner of his school. A fine rhetoric, elevated aspirations; but few facts, not sufficient realities freely seen. What end is served by rebelling against physiological psychology, and by laying claim to the rights of the method of introspection? In truth, no one de-

* First volume of the *Bibliothèque de Criminologie*. Masson, publisher.

† Alcan, publisher.

nies its right; it is suspected only when it affects supremacy, and rejects all control.

I simply mention, in conclusion, the interesting work, which appeared last year, of M. L. LEVY-BRUHL: *L'Allemagne depuis Leibniz, Essai sur le developpement de la conscience nationale en Allemagne*.^{*} It belongs, in great part, to the history of philosophy, and furnishes to it a valuable contribution.

Paris, March, 1891.

LUCIEN ARRÉAT

^{*} Hachette, publisher.

THE MODERN LITERATURE OF ITALY SINCE THE YEAR 1870

NOT being a man of letters, but an alienist, I will give you a psychological rather than a literary description of the condition of literature in Italy. My presentation will undoubtedly have many defects and deficiencies in details, but it will perhaps thereby gain in originality of treatment.

It is one of the characteristics of European writers, and especially of Italians, to isolate themselves completely from scientific research. Beauty for itself, the imitation of the ancients—this is the defect, or the strength, of our poets. ALEARDI, it is true, put some years ago a little botany and geology into his poetry, as did, nearly a century ago, Mascheroni, in his celebrated epistle *Invito a Lesbia Siodonia*. ZANELLA, a true priest, has sung in a celebrated ode the *Coquille Fossile*, which portrays in colors truly poetical the last discoveries of paleontology. But this naturalism was only a light varnish, like the golden powder that coquettes sprinkle on their hair, and which falls at the first movement. It is nevertheless true that some poets, not appreciated yet as they deserve, draw their inspiration from nature or from history.

Such is ARTUR GRAF, who in my opinion owes his genius to an intermixture of race, Italian, Greek, and German, and also to a climatic graft, as he comes from Roumania; which shows the favorable influence of the double race-infusion. (See my work on "Genius.") In his poem *Medusa*, Graf has mingled naturalism and Schopenhauerianism with a poetical spirit which is highly original. He has also written *Il Diabolo* and the *Legend of Rome among the Nations of the Middle Ages*; a work which has philological

and historical merit, especially in connection with the Folk-lore of past centuries. These books are in prose, but their form is wholly poetical.

RAPISARDI is truly the Juvenal, and we may also say the Lucretius, of contemporaneous Italy. He began by giving us the best translation of the great Roman poet, and he has absorbed much of his spirit, and perhaps also of the asperity of his verses, and of his contempt for form. His great original poem is the *Giobbe* (Catania), in which he has given a bitter satire of modern society and of contemporary literary men; however, he would seem to be sometimes too personal; so much so that many persons have not forgiven him. Lately he has published a collection of *Religious Poems* (Catania, 1888), in which, despite its title, there is much less religion than naturalism. It is a hymn, worthy of its master, to the religion of nature and to the beauty of truth, without forgetting the grand social ideas of justice which our poets so often forget.

PRAGA may be described as the Baudelaire of Italy. He too, like the latter, lived and died an alcoholic and paralytic. He was the first to break with the Græco-Latin traditions; and has drawn his inspiration from the caprices of his disease, which has given him a powerful and original stamp. His best works are *Penombre* and *Tavolozza*. The same lot, induced by the same disease, has befallen ROVANI, who in his historical novels (*Giulio Cesare* and *la Storia di centi anni*) has performed good work in history and psychology.

Among writers truly original, MANTEGAZZA excels in prose. His is one of those many-sided, versatile minds that are met with in the Latin races; such as Cardano, Leonardo da Vinci, L. B. Alberti, Voltaire, Taine, Richet. He is by turns pathologist, physiologist, chemist, anthropologist, geographer, traveller, and novelist. His novel *Dio Ignoto* is semi-naturalistic. In his *Fisiologia del piacere* he has attempted a new kind of personal observations, although it is met with in the novels of Balzac, of Flaubert, and of Gonoret. In his *Physiology of pain* he has again become pathological, serious; this book has, accordingly, not obtained the success that it merited. In the *Feste ed Ebbrezze* he describes the pleasures of the people.

But Mantegazza, who has the originality of genius, has also its evil and treacherous volubility ; and we cannot say what is his patriotic and philosophic faith. He has written pages that seem dictated by a catholic priest, by the side of others worthy of Aretino (*Amore degli uomini*), and still other pages which could be signed by Victor Hugo.

Less original perhaps, but much more consistent with himself, is M. TREZZA, another versatile writer, a theologian, poet, historian, critic, philosopher, philologist, but who has not changed the facets of his genius, or the conscience of his faith. At one time a priest, he was one of the most ardent preachers ; but the study of natural science and of philosophy drew him away from his faith and plunged him in naturalism. He has preserved all the apostolic warmth of the ardent and honest priest of his youth. Thus he has emerged from it a new being immovable in his faith :

" Come torre che non crolla
Giammai la cima per soffiare dei venti." *

His works in religious criticism *La Religione e le Religioni*, and also in history and philosophy (*Lucrezio, Epicuro e l'Epicurismo, La Critica Moderna*) have received from it a peculiar impress, in which the enthusiasm of the apostle is mingled with the calm observation of science, and history confounds metaphysics. He is the first and the only one perhaps, who has attempted criticism in Italy while preserving a literary brilliancy which reminds us of Carlyle.

But according to universal opinion, among all these stars, the star of first magnitude is GIOSUE CARDUCCI. He is the true representative of the Italians, a graft of antiquity on the moderns, but in which antiquity predominates. His poems (*Le Nuove Poesie, Le Odi barbare, Le Nuove Odi barbare, Le Terze Odi barbare, Le Nuove Rime*) have attracted the greatest attention. He has introduced and revived a new metre, many times tried, but never with success, by Trissino, Campanella, Chiabrera, and others ; a new metre which reproduces the ancient rhythm of Greek and Roman poetry, espe-

* Like a tower that shakes not
In the blasts of the storm.

cially the elegy and the Alcaic ode. His is a new pagan Renaissance with a certain gloss of modernness but with outbursts sometimes patriotic and even revolutionary which the Renaissance lacked. His prose works also consist of archaic reconstructions of Italian literary history and of vigorous polemics, sometimes too personal, but always with a refinement of critique.

By the side of these productions which are known everywhere, and which can be truly called national, there is a substratum, of considerable extent, of literary works that have a local character. Such is the poetry of dialect which has however a great weight with us; for the best satirical poems and the best comedies are almost always written in dialect (*Pascarella* in the Roman dialect, *Fucini* in the Tuscan dialect, *Di Giacomo* in Neapolitan, *Bersezio* in Piedmontese, *Rizzotto* in Sicilian). It must be remarked also that this local division is still maintained in the rolls of the great army of literature, although this does not prevent such works passing beyond the geographical limits of their territory and becoming known throughout the whole of Italy.

We have a Ligurian-Piedmontese school with DE AMICIS at the head,—De Amicis, who now however often attempts social studies with much intrepidity,—and BARILI, FARINA, BERSEZIO, GIACOSA, and FALDELLA, who possess the common characteristic of a sentimentality almost feminine, altogether opposed to the rugged country of which they constitute the glory.

There is the Tuscan-Bolognese school of which CARDUCCI is the chief pontiff and which hovers about the old school. M. PANZACCHI, RICCI, MARRADI, and STECCHETTI belong to it; there was an epoch in the life of the last named in which he launched into a style which seemed naturalistic, but which was at bottom only pornographic; but he immediately compensated for his escapade by a great number of philological memoirs of an erudition truly oppressive, ultra-academical.

There is the Abruzzian school, of which D'ANNUNZIO is the head. Its characteristics are variegated tropical coloring, and a certain studied ornamentation sometimes burdened with similes and metaphors, and an exaggerated objectivity; it lays hold of the out-

side of things, but does not reach to and grasp the soul of the inner life of nature.

The Neapolitan school is made up of compilers and ingenious critics, who will make you an elegant embroidery with gossamer threads on the point of a needle. The most celebrated names of this school are SETTEMBRINI, DESANTIS, BONGHI, and VITTORIO IMBRIANI.

The Sicilian is the rudest, but it is the most powerful and most original. We could name the great historians CEMARI, LA LUMIA, LAFARINA; and PITTRE, who created Italian Folklore, and who has maintained it with a special journal. Sicily has also given us two great novelists, VERGA and CAPUANA, who are improved Zolas. The *Malavoglia* and *Don Gesualdo* of M. Verga give us the home life of the Sicilian people. In the *Giacinta* of Capuana we have the life of the citizens and of the Italian nobility photographed.

Women always preserve the local type; but with special features. Hardly any write in verse; they compose novels and light productions rather than romances, sketches rather than true portraits. They choose the young girl and the unfortunate married woman; very often they write autobiographies, or the biography of their friends or their husbands. The land-question has nevertheless been dealt with very well by the Marchioness COLOMBI, (pseudonym of Madame Torelli Viollet) and the woman's question has been treated of with great vigor and statistically by KULISCHIOFF; I have not spoken of ANNIE VIVANTI, another proof of the advantages of crossing, for she is Anglo-American and Anglo-Italian, and a Jewess to boot; she writes in verses which have nothing of the classical element in them—an extraordinary thing in Italy. Her works possess originality, which goes as far as the most extreme naturalism. (*Lirica di Annie Vivanti*, 1890.)

In fine, modern Italy has not many literary masterpieces to show. And this is due to a number of causes. In romances and comedies, dash and spirit demand a certain stock of observations that can be found only in great cities (capitals), and in Italy, Rome and Milan are only beginning to be such.

Originality, multiplicity, and energy of types are very scarce in

Italy, for everywhere the conventional lie dominates ; it is much more difficult to choose models here than it is in certain other countries, for example in Russia ; for genius alone can draw inspiration from inferior and ordinary material.

The classical system of education has prevented us from going to the source of social anomalies, mattoids, madmen, etc.

Besides, classicism, which has dominated us for so many centuries, and which has inspired us with its marvellous beauties, has, like the old, (and it is very old,) lost all its vital force. People have made believe to warm themselves by it ; but they have not succeeded ; they remain cold ; and they admire its adepts only in deference to the conventional lie. Yet the entire education of our youth consists of that. It is the same as in religion. People have made Madonnas and Jesuses of it to such an extent that now there is no longer any means of contriving anything new. Naturalism without being the natural foundation of the people is nevertheless sufficiently advanced not to allow of serious inspiration in religion.

Many authors who have sought new paths have been led out of their way by journalism and politics, which always end in exhausting people, even geniuses. SCARFOGLIO, BONGHI, TÖRELLI, DEZERBI, and FERRI are among the number.

The difficulty of securing a place in the literary world also very quickly exhausts many. Thus many men, especially of Southern Italy, produce a very good work ; but they have become fathers too late in life, and have only a single son ; such are BERSEZIO, with his *Travet*, BOITO with his *Ballate*, VALCARENGHI with his *Confessioni d'Andrea*.

Political liberty, if it has given an impulse to social and political studies, has prejudiced great literary production, perhaps because under the incitement of foreign domination and of rebellion, the heart draws from a grand source of inspiration, and the pen finds powerful excitation, more powerful perhaps, than liberty gives it.

Art finds more numerous elements of success in minds highly excited. It is the property of great revolutions to elevate the souls of all contemporaries, to impart to them a peculiar disposition unknown before, and which is not slow to disappear. The most

humble, the most obscure, those even who have not taken any part in the events and who have hardly studied them, express, a long time afterwards even, sentiments much superior to those which their ordinary condition allows. It is sufficient to have lived during some passionate epoch to issue from it better, purer, and stronger. The new ideas, the generous impulses which then carry away nations, penetrate into all classes and ennoble a whole generation. We had in our revolutionary epoch, Manzoni, Massimo d'Azeglio, Guerazzi, Giusti, Porta, Miceli, Brofferio, Berchet, Mameli, Boerio, Laquacci, Aleardi, Grassi, Prati. Who have we now to compare with them?

Turin, March, 1891.

CESARE LOMBROSO.

BOOK REVIEWS.

THE ORIGIN OF THE ARYANS. An Account of the Prehistoric Ethnology and Civilisation of Europe. By *Isaac Taylor*, M. A., L. L. D. New York: Scribner & Welford.

The author of this extremely interesting work states in the preface that it does not aim at setting forth new views or speculations. His opinions on its main thesis, that is, as to the place of origin of the primitive Aryans, are those of Spiegel and Schrader, except where he prefers the conclusions of Cuno. These writers, with the majority of the latest investigators of the subject, accept the view originated* by the English philologist Dr. R. G. Latham in 1851, that the original home of the primitive Aryans was on the great plain of Central Europe. Cuno insisted also on what Dr. Taylor affirms is now an axiom in ethnology, that race is not coextensive with language. This is a most important principle, as it completely changes the aspects of the problem by making it more complex. It introduces, in fact, a fresh element; as it requires the Aryan to be identified before his primitive habitat can be sought for.

The difficulties attending this identification are clearly pointed out in the present work. During the neolithic period, Europe was inhabited by four distinct races, all of which are represented among the present Aryan-speaking peoples of the continent. If the primitive Aryans are to be identified with one of those races it must have imposed its speech on the other three. Moreover, of those four races, two are decidedly dolichocephalic, or long-headed, the other two being as decidedly brachycephalic, or broad-headed. The latter are now represented by the Slavo-Celtic, and the Ligurian, or Swiss and Savoyard, peoples; while the present representatives of one primitive long-headed race are the Swedes, the North Germans and the Friesians, and of the other, the Corsicans, the Spanish Basques, and some of the Welsh and Irish. There are grounds for believing, however, that the two dolichocephalic races were derived from a single root, and that the two brachy-

* Dr. Daniel G. Brinton in his *Races and Peoples* points out that the view referred to in the text was first stated by the Belgian naturalist M. D'Hallay; but it has always been accredited to Dr. Latham by German writers and, as mentioned by Dr. Taylor, was regarded by them as an English "fad."

cephalic races will ultimately be identified as one. There would thus be left only two primitive stocks, one long-headed and the other short-headed, and Dr. Taylor concludes, not only that the primitive Aryans belonged to the latter, but that they were racially connected with the Finno-Ugric tribes of Eastern Europe and Central Asia. He shows that the culture of the Slavo-Celtic race, as exhibited in the round barrows of Britain and the pile-dwellings of Central Europe, comes nearest to that of the primitive Aryans, as disclosed by linguistic palæontology. Further, that anthropologically this belongs to the same type as that of the tall, fair, broad-headed Finno-Ugric tribes; agreeably to which, the grammatical resemblances between the Aryan languages and those of the Ural-Altaic stock point to a primitive unity of speech.

There would seem to be no doubt that the greater part of Europe was originally occupied by peoples of the long-headed type, and Dr. Taylor conjectures "that at the close of the reindeer age a Finnic people appeared in Western Europe, whose speech remaining stationary, is represented by the agglutinative Basque, and that much later, at the beginning of the pastoral age, when the ox had been tamed, a taller and more powerful Finno-Ugric people developed in Central Europe the inflective Aryan speech." This theory requires that the non-Aryan long-headed race should have acquired in some way the Aryan speech, and it is not surprising that the North Germans reject the "Turanian" theory accepted by the French and espoused by our author, and maintain that the physical type of the primitive Aryans was that of their own tall, fair, dolichocephalous race. On this view, the ancestors of the brachycephalic Lithuanians, whose language best represents among those of Europe the primitive Aryan speech, must have been Aryanised by the ancestors of the Teutons, whose language approaches nearest to the Lithuanian. Dr. Taylor points out, however, that this would leave unexplained "how the speech of the brachycephalic Celts and Umbrians, to say nothing of the Greeks, the Armenians, and the Indo-Iranians, was obtained from that of the dolichocephalic Teutons; how a people which in neolithic times was few in numbers, and in a low state of culture, succeeded in Aryanising so many tribes more numerous and more civilised."

The question arises as to how far this "Aryanising" process extended. Was it limited to language or did it include certain physical characters as well? As a fact the superficial characters of the tall dolichocephalic type which, according to Nilsson and Von Düben, has prevailed in Sweden continuously from the earliest times to the present day, make an approach to the florid complexion, light eyes, and reddish hair of the tall brachycephalic race. The former have lighter hair, a whiter skin, and eyes of blue instead of gray, but these are just the differences that might be expected, as the result of the admixture of the Slavo-Celtic stock with that to which the famous Neanderthal skull belongs, and which is now known as the Canstadt type. At the same time it is possible that the difference in color as well as in stature which distinguishes the tall from the short races belonging to both the long-headed and the broad-headed stocks may be the result of external in-

fluences, such as climate, food, and clothing, and the general conditions of life in a mountainous or northern region. This would apply at all events to the Teutonic or Scandinavian type, and also to the Celto-Slavic which represents the primitive Aryan type, or rather their Ugro-Finnic predecessors, if it is true, as Dr. Schrader concludes, that the undivided Aryans had only two seasons, winter and spring, or at most three. This fact does not necessarily imply that they lived in a northern region; for the same climatic conditions could be met with in a mountainous district. Dr. Schrader thinks, however, that the precise region can be approximately indicated by reference to the beech tree. We are told that this tree does not now grow east of a line drawn from Königsberg to the Crimea, and its northern limit must formerly have been still more restricted. Hence the cradle of the Latin, Hellenic, and Teutonic races, which have the same name for this tree, must have been to the west of the ancient beech-line. But since the Slavo-Lithuanian name is a Teutonic loan-word, we must place the cradle of the Lithuanians and the Slaves to the east of this line. But since there are philological reasons for believing in the unbroken geographical continuity of the European Aryans previous to the linguistic separation, they must be placed in northern Europe astride of the beech line; the Slavo-Lithuanian in European Russia; and the Celts, Latins, Hellenes, and Teutons farther to the West. It may be doubted, however, whether this necessarily indicates northern Europe as the primitive Aryan home. Dr. Latham in his "Native Races of the Russian Empire" insisted on Podolia being the region where Sanskrit and Zend developed themselves, the Slavo-Lithuanian region lying to the north and west of it. Curiously enough the beech-line passes directly through Podolia, which might therefore claim to be the classic Aryan abode. Too much stress should not be laid, however, on such an incident as the occurrence of a particular name for a tree. It is quite possible that the beech may not have been known to the brachycephalic Aryans until after they came in contact with the dolichocephalic Teutons. This would seem, indeed, to be required if the Ugro-Finnic origin of the Aryans is well founded. At the same time it should be pointed out that while, according to Keith Johnston's "Physical Atlas," the region of deciduous trees extends as far east as the Aral Sea, Latham refers the beech to the Caucasus as its special habitat; and the mountain slopes of the Caucasus are shown by Peschel to be the best fitted geographically for the original home of the Indo-European race.

After all the question of the *place* of origin of the primitive Aryans is not so important as that of their race affinities, on which, indeed, the former question ultimately depends, and Dr. Taylor has done well to follow up what he terms the "pregnant suggestion" of Dr. Thurnam, the joint author with Dr. J. Barnard Davis of their great work "Crania Britannica," as to the identification of the primitive Aryans with the "Turanian" race of the British round barrows. That he has conclusively established this point it would be rash to affirm, but he has presented a very strong argument in its favor, which is not weakened by Prof. Huxley's at-

tempt to locate the fair dolichocephali in Latham's Sarmatia, as the primitive Aryan race. It should not be lost sight of, however, that the Ugro-Finnic relationship of the Aryans would restore to them the Asiatic origin of which recent discussion has tended to deprive them, for the Ugrians undoubtedly belong to the Asiatic area. On the other hand, if Dr. Topinard, the distinguished French anthropologist, is correct in his assertion that the Aryan blood has disappeared, the question resolves itself into "a discussion of the ethnical affinities of those numerous races which have acquired Aryan speech." This is not our author's own opinion, although it is perhaps countenanced by Cuno's maxim. We must leave here Dr. Taylor's work which will be universally recognised as one of great merit, whatever view may be taken as to the Aryans and their origin. Ω.

INTRODUCTION TO THE STUDY OF PHILOSOPHY. By *William T. Harris*. New York : D. Appleton & Co., 1890.

The merits of Dr. William T. Harris in the awakening and the fostering of philosophical interests in this country are extraordinary. As the editor of the *Journal of Speculative Philosophy* he has published translations of the most effective and important chapters of the European, mainly German, philosophers, and also original articles by American thinkers. Among the latter we find contributions from names of highest rank, as well as essays by the editor himself. Dr. Harris was also one of the most brilliant lights of the Concord School of Philosophy; indeed, he may be considered as its centre and representative, for whatever divergence of thought may have appeared in the Concord lectures, the general character of what goes by the name of Concord Philosophy was determined by him. The present work accordingly will command no common attention among those interested in the historical growth of American thought and especially American philosophy, it being a systematic arrangement of extracts made by Marietta Kies from Professor Harris's essays, compiled for the purpose of serving as a class-book at Mt. Holyoke Seminary and College.

However great may be the historical importance of Dr. Harris as the Nestor of American philosophy, we cannot suppress our doubt as to whether his philosophy can be recommended as a study for beginners. Dr. Harris is too original a thinker, and his originality is not in accord with the present time. His cast of mind may be characterised as Hegelian; not that he should be called a follower of Hegel, but his way of thinking follows in many respects the method of abstract ratiocination pursued by that great German philosopher. Still, the results of Dr. Harris are even in closer contact with the religious ideas of Christianity than those of Hegel. We shall delineate here a few characteristic traits of Dr. Harris's speculative thought: "Philosophy attempts to find the necessary *a priori* elements or factors in experience, and arrange them into a system by deducing them from a first principle." We should prefer according to the method of positivism to derive the so-called *a priori* or the "formal", and with it the conditions of cognition, not from a first

principle but from the facts of experience. Dr. Harris calls Space, Time, Causality "presuppositions of experience": they make experience possible. We consider them as parts of experience as characteristic properties, and our concepts of time, space, and causality have been abstracted from experience. Dr. Harris says: "Space in limiting itself is infinite . . . time is infinite, and yet it is the condition necessary to the existence of events and changes. . . . The principle of causality implies both time and space. . . . If we examine it, we shall see that it again presupposes a ground deeper than itself. In order that a cause shall send a stream of influence over to an effect, it must first separate that portion of influence from itself. Self-separation is, then, the fundamental presupposition of the action of causality. . . . Causa sui, spontaneous origination of activity, is the ultimate presupposition underlying all objects and each object of experience. . . . Causa sui, or self-cause, is properly the principle *par excellence* of philosophy. . . . Here is the necessary ground of the idea of God." In the last chapter Dr. Harris discusses "the immortality of man," denoting thereby the immortality of the individual and the continuance of consciousness after death. He expresses his argument in admirable terseness in the following sentence: "How is it possible that in this world of perishable beings there can exist an immortal and ever progressive being? Without the personality of God it would be impossible, because an unconscious first principle would be incapable of producing conscious being, or if they were produced, it would overcome them as incongruous and inharmonious elements in the world. It would finally draw all back into its image and reduce conscious individuality to unconsciousness." This is a different solution of the problem from that presented in the article "The Origin of Mind" in the first number of this magazine. K.

THE EVOLUTION OF SEX. By Prof. Patrick Geddes and J. Arthur Thomson. New York: Scribner & Welford.

The present work is in some sense a reproduction of the articles "Reproduction," "Sex," and "Variation and Selection," contributed by Professor Geddes to the most recent edition of the "Encyclopædia Britannica." It goes further, however, and not only contains much additional information, but the views of the authors on the factors of organic evolution and on biology in general are more precisely formulated and developed. The central thesis of the work, as stated in the preface, is "in the first place, to present an outline of the main processes for the continuance of organic life with such unity as our present knowledge renders possible; and in the second, to point the way toward the interpretation of these processes in those ultimate biological terms which physiologists are already reaching as regards the functions of individual life,—those of the constructive and destructive changes (anabolism and katabolism) of living matter or protoplasm." The authors seek to prepare the way for the restatement of the theory of organic evolution, that of "definite variation, with progress and survival essentially through the subordination of individual struggle and development of species-maintaining ends."

Among the subjects treated of are Sexual characters and the determination of Sex, the analysis of Sex-organs, tissues, and cells—the nature and origin of Sex, and the processes and theory of reproduction. This is a sufficiently broad field, and it embraces various biological questions recently discussed, especially that of sexual selection and the theories of Professor Weismann. The authors claim that their view of the processes concerned with the maintenance of the species leads necessarily to a profound alteration of the conclusions usually held as to its origin. What is meant by this statement appears from the last chapter, in which the reproductive function as a factor in evolution is considered. Here it is stated that the usual perspective which places the theory of natural selection in the foreground, sexual selection being a mere harmonious corollary, has to be reversed. Recent investigations on heredity "forbid that attention should any longer be concentrated on the individual type, or reproduction regarded as a mere repetition process; the living continuity of the species is seen to be of more importance than the individualities of the separate links. . . . The species is a continuous undying chain of unicellular reproductive units, which indeed build out of and around themselves transient multicellular bodies, but the processes of nutritive differentiation and other individual developments are secondary, not primary" (p. 308).

The study of the reproductive process is thus of supreme importance for the understanding of organic evolution. What then is the authors' theory of reproduction? It may be stated in the terms of their own summary. The essential fact in reproduction is the separation of part of the parent organism to start a fresh life. Hence, it begins with rupture, a katabolic crisis, at which occurs cell-division, this being always associated with the act of reproduction. This is favored by katabolic conditions of the environment. The opposition between nutrition and reproduction is the most obvious antithesis in nature after that of life and death—with the latter of which, indeed, as has been shown by Goette, reproduction is intimately associated—and it may be stated in the terms that "as a continued surplus of anabolism involves growth, so a relative preponderance of katabolism necessitates reproduction" (p. 237).

The organic relation between nutrition and reproduction is thus shown to be one of great importance, but its significance becomes more apparent when it is seen, as pointed out by the authors, that "throughout organic life there is a contrast or rhythm between growth and multiplication, between nutrition and reproduction, corresponding to the fundamental organic seesaw between anabolism and katabolism. This contrast may be read in the distribution of organs, in the periods of life, and in the different grades of reproduction; and the contrasts between continuous growth and discontinuous multiplication, between asexual and sexual reproduction, between parthenogenesis and sexuality, between alternating generations, are all different expressions of the fundamental antithesis" (p. 231). Elsewhere, the essential importance is referred to of "the continual correlation, yet antithesis—the action and reaction—of vegetative and reproductive processes in al-

ternate preponderance," to which the general rhythm of individual and social life runs parallel. And yet this life is essentially a unity, of which the specific characters are but the symptoms, whatever may be "their subsequent measure of importance and utility in adaptation, their modification by environment, their enhancement or diminution by natural selection" (p. 314).

This conclusion as to the unity of the life of the individual and that of the species, is based on the fact that nutrition and reproduction are nearly akin. Hatchesek goes so far, indeed, as to affirm that nutrition is reproduction, an apparent paradox which is justified by the statement that "not only do hunger and love become indistinguishable in that equal-sided conjugation which has been curiously called 'isophagy,' but nutrition in turn is nothing more than continual reproduction of the protoplasm." The real unity is found in the fact that anabolism and katabolism, which are the determining factors of growth and reproduction, are the two sides of protoplasmic life. This conclusion has an important bearing on the question of the origin of sex. In his theory of *genoblasts*, or sexual elements, Minot treats male and female as derivatives of primitive hermaphroditism in two opposite directions, the differentiation taking place "by the extrusion or separation of the contradictory elements, the ovum getting rid of male polar globules, the sperm leaving behind a female mother-cell remnant." The authors of the present work accept this view, which however has become extremely improbable since Weismann has called attention to the fact that the same process takes place in the parthenogenetic summer-eggs of Daphnidae—a fact which has been overlooked by our authors. They also adopt Rolph's view that the less nutritive, and therefore smaller, hungrier, and more mobile cells are what we call male; the more nutritive and usually more quiescent cell being the female, as consistent with the conclusion already inferred from other facts that "the female is the outcome and expression of preponderant anabolism, and in contrast the male of predominant katabolism" (p. 132). This conclusion is elsewhere stated as that "the males live at a loss, are more *katabolic*,—disruptive changes tending to preponderate in the sum of changes in their living matter or protoplasm. The females, on the other hand, live at a profit, are more *anabolic*,—constructive processes predominating in their life, whence indeed the capacity of bearing offspring" (p. 26). Here is the same contrast as that seen in the alternating phases of cell-life, of activity and repose, and in the great antithesis between growth and reproduction. The argument is put into diagrammatic form, where the sum-total of the functions are divided into nutritive and reproductive, the former into anabolic and katabolic processes, and the latter into male and female activities. This theory of Rolph, if it contains a grain of truth, needs a thorough revision; and the same may be said about the authors' special theory, which is, that there is a parallelism in the two sets of processes, "the male reproduction is associated with preponderating katabolism, and the female with relative anabolism, according to which view both primary and secondary sexual characters express the fundamental physiological bias characteristic of either sex"

(p. 27). This has a special bearing on the question of sexual selection, the true relation of which to natural selection, according to the authors of the present work, must be expressed in their own words. It is embodied in the conclusion that sexual selection is a minor accelerant, natural selection a retarding 'brake,' "on the differentiation of sexual characters, which essentially find a constitutional or organismal origin in the katabolic or anabolic diathesis which preponderates in males and females respectively" (p. 31).

Before concluding this notice, it may be pointed out what are the particular conditions on which the determination of sex depends, in regard to any given organism. The various suggestions proposed as to the influence of parents, according to age or otherwise, the time of fertilisation, Starkweather's law that sex is determined by the superior parent, and that the superior parent produces the opposite sex, and Düsing's theory as to the regulation of the proportions of the sexes, are referred to by the authors and either rejected or considered as insufficient. The conclusion they arrive at after considering the influence of nutrition, temperature, and other conditions, is, that adverse circumstances affecting the parents, especially of nutrition, but also age and the like, tend to the production of males, the reverse conditions favoring females; a highly nourished ovum and fertilisation when the ovum is fresh and vigorous, tend to the development of a female rather than of a male. Further, the longer the period of sexual indifference continues, the more important become the outside factors, and here again "favorable conditions of nutrition, temperature, and the like, tend toward the production of females; the reverse increase the probability of male preponderance." This agrees with the conclusion independently arrived at that the male germs are "of smaller size, more active habit, higher temperature, shorter life, and the females the larger, more passive, vegetative, and conservative forms" (pp. 50, 51). Thus the authors' proposition that the male is the outcome of predominant katabolism, and the female of equally emphatic anabolism, might seem to be justified, and it is confirmed by the curious phenomenon of alternation of generations, and by various facts connected with growth and reproduction. However, it does not definitively exclude the theory (see Dr. Heinrich Janke's work. Stuttgart, 1889) that the male is the outcome of katabolism of the male element coincident with *anabolism* of the female element, and the female of the opposite state.

In considering the psychological and ethical aspects of sex from the physiological standpoint the authors remark truly that in order to obliterate the distinctions between male and female, it would be necessary to have evolution over again on a new basis. Although so different, however, the two sexes are complementary and mutually dependent, "not merely because they are males and females, but also in functions not directly associated with those of sex." Males, as the more katabolic organisms, are more active and variable than the anabolic females, who are more passive and stable. The former have larger brains and more intelligence, but the latter have more of the altruistic sentiment and greater constancy in affection and sym-

pathy. "Man thinks more, woman feels more. He discovers more, but remembers less; she is more receptive, and less forgetful." All this is true within certain limits, but whether or not it may be explained by other theories remains an open question. Ω.

ANIMAL LIFE AND INTELLIGENCE. By C. Lloyd Morgan, F. G. S. London: Edward Arnold.

The chief aim which the author of this important work had originally in view was the consideration of Animal Intelligence. But the subject of Intelligence being so closely associated with that of Life, and the questions of Heredity and Natural Selection with those of Habit and Instinct, he has devoted the first part of the work to Organic Evolution, as introductory to Mental Evolution. This was rendered necessary, however, by the direct bearing of Professor Weismann's recent contributions to biological science on questions of Instinct. It would be impossible to treat of the mental constitution of the lower animals without reference to that of man, and in his preface Professor Morgan forestalls certain results arrived at by a comparison of them. He states that in man alone, and in no dumb animal, is the rational faculty, as defined by him, developed; and he adds, "it is contended that among human folk that process of natural selection, which is so potent in the lower reaches of organic life, sinks into comparative insignificance. Man is a creature of ideas and ideals. For him the moral factor becomes one of the very highest importance. He conceives an ideal self which he strives to realise; he conceives an ideal humanity towards which he would raise his fellow-man. He becomes a conscious participator in the evolution of man, in the progress of humanity."

So great a variety of topics are dealt with by the present work that we shall be able to do little more than refer critically to the author's special views, particularly those which concern the mental characters of the lower animals. There are, however, various points in the earlier part of the work well deserving of consideration. Such is the suggestion that, instead of likening an organism as a whole to a steam-engine, it would be better to liken each cell, with its fluid explosive material, to a gas-engine, and the mixed air and gas to whose explosion its motion is due. The importance of *segregation* as a factor in the formation of improved varieties is insisted on, but Professor Morgan doubts whether differential fertility, on which Mr. Romanes lays great stress*, would, without the co-operation of other segregation-factors, give rise to separate varieties capable of maintaining themselves as distinct species (p. 105).

Dealing with the knotty question whether, if the egg produces the hen, the hen produces the egg, the author criticises Professor Weismann's idea of the continuity of germ-plasm, which he regards as "an unknowable, invisible, hypothetical entity," that may be made to account for anything and everything, and prefers

* *The Monist*, No. 1. p. 5.

the hypothesis of cellular continuity (138 et seq.). The cells which become ova or sperms never become differentiated into anything else, and "hereditary similarity is due to the fact that parents and offspring are derived eventually from the same germinal cells" (p. 175). Finally, Professor Morgan criticises Mr. Wallace's views on the subject of sexual selection, which he is inclined to think is a factor with natural selection in the guidance of evolution (p. 200 et seq.).

More than half of the book, which contains more than 500 pages, is taken up with these preliminary disquisitions, the remainder being concerned with the nature and development of the mental activities. The first branch of this inquiry is that of the senses of animals. We cannot follow the author in his very interesting remarks on this subject, beyond referring to his suggestion that the lower animals may have senses not known to man. After mentioning the muciparous canals met with in fishes, he says, "apart from the possibility of unknown receptive organs as completely hidden from anatomical and microscopic scrutiny as the end-organs of our temperature-sense, there are in the lower animals organs which may be fitted to receive modes of influence to which we human folk are not attuned" (p. 298). For example, insects may be sensitive to tones of heat; while on the other hand, their color phenomena may vary greatly from ours consequent on structural differences in the sense-organs. In dealing with mental processes in man the author states as a well-known fact that "a person whose leg has been amputated experiences at times tickling and uneasiness in the absent member" (p. 307). This is not, however, an accurate description of the phenomenon. There can be no feeling in a lost limb. The idea that the sensations are "referred outward to the normal source of origin of impressions," has arisen from the remark sometimes made by persons thus affected that they feel as though they still had toes. This is true to some extent, but as a fact the sensation is as though the toes were bent and tightly bound at the end of the *stump*, and not at the end of the missing limb.

It is advisable before proceeding further to see what view Professor Morgan entertains as to the mental process in animals. This is apparent from the statement that, although there is no difference in kind between the mind of man and the mind of a dog, yet that "we have, in the introduction of the analytic faculty, so definite and marked a new departure, that we should emphasise it by saying that the faculty of perception, in its various specific grades, differs generically from the faculty of conception." The author adds, "believing, as I do, that conception is beyond the power of my favorite and clever dog, I am forced to believe that his mind differs generically from my own" (p. 350). Elsewhere he says, "if I deny them self-consciousness and reason, I grant to the higher animals perceptions of marvellous acuteness and intelligent inferences of wonderful accuracy and precision—intelligent inferences in some cases, no doubt, more perfect even than those of man, who is often distracted by many thoughts" (p. 377). If we would understand these conclusions aright we must know the sense in which Professor Morgan uses the terms employed, and to do this we must refer to the explanation he gives

of mental processes in man. He tells us that in the first place we obtain knowledge of the existence of the objects around us through perception, which is attended with a process of construction. An object is in fact a *construct*, at the bidding of certain sensations, which suggest to the mind the associated qualities. In what sense such an object is regarded as real we shall see later on. As to the constructs, their formation is followed by examination, "by which they are rendered more definite, particular and special, and supplemented by intelligent inferences." Out of this intelligent examination arises a new mental process, the *analysis of constructs*. Attention is paid to certain qualities of objects to the exclusion of others, a process termed by the author *isolation*, the products being *isolates*. This process is constantly going on, and all the qualities, relationships, and feelings thus isolated have applied to them arbitrary symbols. They are in fact *named*, and "hence arises all our science, all our higher thought." At this stage we enter the field of conception, as the isolates are *concepts*, whereas throughout the process of the formation of constructs and their definition we have to do with perception and percepts. Here Professor Morgan agrees with Noiré in holding that "the image, in so far as it is an image, whether simple or composite, is a percept," while so far as there enter into the idea of objects elements which have been isolated by analysis, the words for those objects stand for concepts. There is another important feature of the mental processes in man. The primary aim of the reception of the influences of the external world, or environment, is "to enable the organism to answer to them in activity." Moreover, out of perceptions through association there arise certain expectations, and "the activities of organisms are moulded in accordance with these expectations." Phenomena are perceived as linked or woven, and expectations are the outcome of that perception, the mental process by which we pass from one link to another being called *inference*. Again, we have perceptual inference, or inference from direct experience, and conceptual inference, or "inference based on experience, but reached through the exercise of the reasoning faculties" (p. 328 et seq.).

Applying these principles to the mental processes in animals, the author affirms that, granting the theory of evolution, "the early stages of the process of construction—discrimination, localisation, and outward projection—are the same in kind throughout the whole range of animal life, wherever we are justified in surmising that psychical processes occur, and the power of registration and revival in memory has been established" (p. 338). But, though the higher mammalia form *constructs* analogous to, if not closely resembling ours, the resemblance cannot be in any sense close, "seeing to how large an extent our constructs are literally our *handiwork*." To the question whether the higher animals have "the power of analysing their constructs and forming isolates, or abstract ideas of qualities apart from the constructs of which these qualities are elements," Professor Morgan answers negatively. He supposes, for example, that a dog may have a vague representation in memory of things good to eat, "in which the element of eatability is predominant and comparatively distinct, while the rest is vague and indistinct"; and to mark the differ-

ence he calls the prominent quality a *predominant*, "as opposed to the isolate when the quality is floated off from the object." Hence he agrees with Locke that abstraction, in the sense of isolation, is not possessed by the lower animals, and he thinks that the line should be drawn there between brute intelligence and human intelligence and reason (p. 349). As soon as predominant qualities are named they become isolates, and thus "body and mind became separable in thought; the self was differentiated from the not-self; the mind was turned inwards upon itself through the isolation of its varying phases; and the consciousness of the brute became the self-consciousness of man." The agent in this upward progress is language, and hence, granting the possibility of a transitional stage where word-signs stood for predominants, and not yet for isolates, the author accepts Prof. Max Müller's view that language and thought are practically inseparable (p. 371). If any serious objection can be made to this reasoning, it must be we think to the opinion that language made, not merely conceptual thought, but analysis and isolation possible. This is preceded, as we have seen by "intelligent examination," and we are expressly told that out of this arises the mental process of *analysis of constructs* which animals do not possess. To this faculty then must be traced the ultimate distinction between them and man. It may be doubted, moreover, whether animals have any idea of even a predominant quality apart from some object. The formation of "constructs," that is the recognition of objects, as the result of external stimuli, is instinctive, except so far as it depends upon association through experience in past generations. If animals can even vaguely represent a single quality apart from an object, it is the first step in analysis, and there is no reason why they should not go on to abstraction or isolation, and thence to reason. That animals do not possess reason, in the sense of conceptual inference, is we think unquestionable, and Professor Morgan does well in restricting them to intelligence, by which he intends the process by which perceptual inferences are reached (p. 330).

We have not space to refer to the views expressed in the chapter on "Appetence and Emotion," beyond stating that the author, while admitting that in animals are to be found the perceptual germs of even the higher emotional states, concludes that "ethics, like conceptual thought and aesthetics, are beyond the reach of the brute. Morality is essentially a matter of ideals, and these belong to the conceptual sphere" (p. 414). In the chapter on "Habit and Interest," after speaking of Mr. Romanes's treatment of instinct as most admirable and masterly, he compares Mr. Romanes's views as to the origin of secondary instincts with those of Professor Weismann as to the non-inheritance of acquired characters, coming to the conclusion that lapsed intelligence is not a necessary factor in the formation of instincts, and that there is a probability of some inheritance of experience (p. 436 et seq.). We must refer our readers to the work itself for the author's explanation of the "monistic" theory, according to which the two sets of phenomena, the physical and the mental, are identical, differing only in being viewed from without or felt from within (p. 417). This view is developed in the chapter on Mental Evolution, where we read,

"according to the monistic hypothesis, kinesis and metakinesis are co-ordinate. The physiologist may explain all the activities of men and animals in terms of kinesis. The psychologist may explain all the thoughts and emotions of man in thoughts of metakinesis. They are studying the different phenomenal aspects of the same noumenal sequences" (p. 472). For Professor Morgan the idea of the object is the object, but he is not a pure idealist. Phenomena are something more than states of consciousness. There is a noumenal reality which underlies the reality of the phenomena, and the enduring ego, of which certain states of consciousness are occasional manifestations, is the metakinetic equivalent of the organic kinesis. Here he sees the solution of the problem which baffles alike materialists and idealists (p. 475).

We must now take leave of this work which, notwithstanding its occasional abstruse and technical character, is not "beyond the ready comprehension of the general reader of average intelligence." It deserves to be widely read, not only for its subject-matter, but for its clearness of explanation and wide grasp of thought. The value of the book is much added to by its diagrams and illustrations, and by an excellent index and table of contents.

Ω.

PHYSIOGNOMY AND EXPRESSION. By *Paolo Mantegazza*. New York: Scribner & Welford, 1890.

This work of the versatile Italian Anthropologist is probably one of those which best represent his many-sided mind, and which will be the most extensively read. Although strictly scientific, both in its end and method, it is popular in style and contains matter which must recommend it to the ordinary as well as the scientific reader. As the author informs us, he has taken up the study of expression at the point where Darwin left it. But he has made a further step. He has set himself the task "of separating, once for all, positive observations from the number of bad guesses, ingenious conjectures," which have hitherto encumbered the path of the study of the human countenance and human expression. His book is a "page of psychology," and he has endeavored to supply the psychologist, and also the artist, with new facts, as well as old facts interpreted by new theories, and to bring into view "some of the laws to which human expression is subject."

A glance at the table of contents shows that the author has fully carried out the promise thus made. The first chapter of the work after giving an historical sketch of the science of Physiognomy and of Human Expression—which in its infancy was "seasoned with the magic which is one of the original sins of the human family"—and tracing it from *Dalla Porta* to Darwin, through *Niquetius*, *Ghiradelli*, and *Lavater*, proceeds to treat of the human countenance in general, and of each of its features in particular. The possible judgments on the human face are reduced in number to five: the physiological, the ethnological, the æsthetic, the moral, and the intellectual. Of these verdicts, the ethnological and æsthetic are based almost exclusively on anatomical characters, while the physiological, moral, and intellectual verdicts depend chiefly on expression. The coloration of the human skin is an im-

portant ethnological feature, and M. Mantegazza thinks that it may be reduced to three tints, white, black, and "dried bean" (*fave seche*), which last he explains by saying that it results from the superposition of two colors, "most frequently from a sort of black or very dark brown dust deposited on a ground of dried bean" (p. 31). Among other interesting ethnological generalisations, is the remark that the Aryans, Semites, and many negroes have large eyes, while Mongols and many Malays have small eyes. In determining the color of the eyes, hair, and skin, the author found the table of tints prepared by M. Broca for the Anthropological Society of Paris insufficient, as the colors there used are opaque, while transmitted as well as reflected rays are combined to give the natural coloration. In the iris of the Lapps fourteen different and graduated shades are distinguishable, from dark chestnut brown to green. M. Mantegazza confirms the observation that a certain hue of the eyes is nearly always associated with a particular hair-color, and he states that this union is one of the most unvarying ethnical characters by which to judge of the purity of race. The nose is nearly as important as the eye as an ethnical and æsthetic feature. The author reproduces M. Topinard's curious table of its morphological characteristics observing that it omits only one, which nevertheless is somewhat important, that is, the angle made by the root of the nose with the forehead. In relation to the mouth we have the suggestive remark, "the eye is the centre of the expression of thought; the mouth is the expressive centre of feeling and of sensuality." As to the color of the hair, M. Mantegazza has brought together many important facts. Among the higher races, the hair may be of almost any of the ordinary tints. The Jews do not differ from the Europeans in this respect, as they exhibit fair hair as well as dark hair, and light and dark eyes. Although in Germany the Jewish population generally is much darker than the rest of the people, many of them have blonde hair, blue eyes, and fair complexion. For some reason not yet ascertained, there is a tendency in Europe and especially in England for the blonde type to disappear. We would suggest that it is a case of reversion to the type of the primitive inhabitants. M. Mantegazza remarks that the beard does not correspond to any intellectual type, as it is strongly developed as well among the Australian aborigines as among the Aryans and Semites. Nevertheless, the beard is worthy of further study as an ethnological feature. It may be noted that the Australian aborigines have been connected with the primitive inhabitants of Western Europe by other characters.

In treating of the expression of the emotions, we are told that physical expression has two different functions—to replace a complete language, and "to defend the nerve-centres and other parts of the body against dangers of different kinds." Much more might have been said on the first subject, as gesture language has within the last few years become an important ethnological study, and, indeed, a supplementary chapter has been written for the English edition of this work on the physiognomy of gesture. There is great truth in the remarks, that "every religion and many philosophical schools have been founded by word and by expression more

than by books"; and that "the more feeling a nation has, the more rich and eloquent are its methods of physical expression." M. Mantegazza does full justice to the great wealth of details and the discoveries on which the Darwinian laws of expression are based, while supplementing them with original observations and results. It is in the classification of expressions we have probably the most important feature of the present work. Full synoptical tables are given of the expressions of Sense, Passion, and Intellect, and of the various expressions of Pleasure and Pain, Love and Hatred. These are illustrated by ingenious remarks, as an example of which we may quote the somewhat cynical statement that "many ladies laugh little lest they should have precocious wrinkles, while others laugh too much and on every pretext that they may show their beautiful teeth." The author well says that in love and pleasure, hatred and pain, "we have two binary compounds, two such energetic psycho-expressive combinations that the formidable and the destructive voltaic pile of our analytic methods is needed to separate the elements." He has some curious remarks on the fact that laughter and smiling are very frequent phenomena in the expression of hatred, for which we refer our readers to the work itself.

To pleasure and pain, love and hatred, M. Mantegazza adds pride and humiliation, as "the fundamental psychical movements of human nature, as ancient as man, and common to all the inhabitants of the globe." Thus, he is of opinion that aristocracy is one of the most natural features of humanity, and that democrats "make history recede instead of advancing when they deny the most elementary laws of heredity and of human nature." We must pass over the expressions of personal feelings, and those of thought, to reach the chapter on racial and professional expression. Here races are classified, according to their expression, into ferocious, gentle, apathetic, grotesque or simian, stupid, and intelligent, but the classification, like all others from single characters, is imperfect. Probably as good a classification could be made on the basis of modes of salutation, beginning with nose-kissing, or the still more primitive smelling. Raden-Saleh, an artist of Java preferred *nose-breathing*, as by it we put our soul into contact with that of the beloved one! It is undoubtedly true, as M. Mantegazza remarks, that the expression of different peoples is replete with their most prominent psychical characters. The beautiful impassioned expression of the Italians is yet defiant and not always frank, owing to their having been so long subjected to tyrants. Speaking generally, the European peoples have an expansive or a concentric expression, of which "the first is found in the Italians, the French, the Slaves, the Russian: the second in the Germans, the Scandinavians, the Spanish." The author adds that there is also "a beautiful expression full of grace, that of the people of Græco-Latin origin; and another hard, quite angular, without roundness, that of the Germans, the English, and the Scandinavians."

M. Mantegazza gives a very skilful analysis of the "moderators and disturbers of expression," referring to his earlier work the "Physiology of Pain" for further de-

tails. In the next chapter he treats of the criteria for the determination of the strength of an emotion with reference to the accompanying expression. In addition to the *force* and the *persistence* of the contraction of the expressing muscles, there is a diffusion of expression in gradually increasing circles from the face downwards to the legs, and lastly, alternate contractions and relaxations of the muscles according to the intensity of the central movement which accompanies the emotion. The expression of pleasure is always centrifugal, that of pain being centripetal, tending to bring the arms and lower limbs towards the median line of the body. In dealing with the criteria for judging the moral work of a physiognomy, we are told that the two most certain signs of a good face, are the permanent expression of benevolence, and the absolute absence of all hypocrisy. Let us add the remark, accredited to Charles Dickens, that it is advisable to see how a person looks when silent and apparently unobserved. There are two sources of error in forming that judgment, one arising from the fact that beautiful things give pleasure, the chances of error increasing when a man has to judge a woman, or *vice versa*; the other is due to a false induction, from the observed association in one individual of a particular physical feature with a special moral character. The anatomical characters of the intelligent face and of the stupid face are given in a tabulated form, but M. Mantegazza states that the most important characters are those drawn from the expression, the two great centres of which are the eye and the mouth. Probably the non-observation of the expression accounts for the mistake made by Goethe, who, when dining at the house of an Englishman, was struck with the intellectual appearance of one of the guests and thought he must be a man of genius. Goethe anticipated pleasure in hearing him speak, but great was his horror, when apple dumplings were placed on the table, to hear the guest shout out "them's the jockies for me"!

In an appendix the author treats of the eyes, hair, and beard among the Italian races, which gives numerous statistics collected by the Italian Anthropological Society. It appears that the men of Tuscany as well as of Piedmont are noted for scantiness of beard. Probably this fact is due to the existence of a special race element, rather than a difference of climate as would seem to be suggested. The presence of red hair in all parts of Italy, although only in small quantities, is also difficult of explanation. Strange to say it is the most common in regions which are poorest in fair hair. From this we must suppose it to have some relation to dark hair, an opinion which agrees with the observation that in England dark hair in young children is sometimes interspersed with red hairs, which either change or disappear with age. The hair is known to darken considerably after puberty is reached, and possibly red hair may be due to the persistence, through special conditions of which we are not aware, of an infantile character.

We must not leave M. Mantegazza's excellent and entertaining work without referring to the plates given in the Appendix, among which are morphological, æsthetic, and intellectual trees of the human race, and figures of ethnic types illustrative of remarks made in the text. It also has a good index.

IN DARKEST ENGLAND AND THE WAY OUT. By *Gen. Booth*, of the Salvation Army.
New York: Funk & Wagnalls.

In this book,—which is considered by many to be the most profound, serious, and comprehensive study of the social problem that has yet appeared, as much so because it seems to strike at the root of the grievance as because it offers a practical remedy,—the author proposes to so ameliorate the conditions of the abandoned classes in England as not only to make the members of them self-supporting and respectable, but after a twenty years' trial of his scheme to so change the industrial condition of the kingdom that there will not be found an able-bodied man or woman in all England unable to find work or food. What politico-economical reformers have had most to contend with is the poverty or lack of opportunity for labor which seems to be inherent in the present social structure,—a condition where, to express it clearly, there seems to be not enough work for all the people. Hence the standing army of tramps to the number of 30,000 in America and more than 20,000 in the city of London alone. The submerged class that the author of this book seeks to elevate or save from sin and utter uselessness has been variously estimated. Mr. Chamberlain says that there is in England a population equal to that of the metropolis—between four and five millions—who are in a state of abject destitution and misery. Mr. Griffin estimates the number to be 1,800,000, while the author of "In Darkest England" thinks 3,000,000 to be a moderate statement. Many causes may be ascribed to this deplorable state of humanity, such as natural incapacity for work, predisposition to idleness, enforced beggary, crime, misfortune, poverty, drunkenness, and waste,—all of which operate to drag these unfortunate ones to the lowest level of life. He thinks that the inability of a large proportion of the people to obtain work drives them either into despair, sin, crime, and suicide, or to merely exist, carrying with them, year by year, the bitter ashes of a life from which the furnace of misfortune has burned away all joy and hope and strength. They are a helpless and pathetic class,—men and women who "are being sucked down into the quicksands of modern life." And when it is known that England is rich enough to drink rum in quantities which appal the chancellor of the exchequer and yet not rich enough to provide any other shelter for her homeless ones and outcasts than the midnight sky, modern civilisation with all its boasted Christianity and humanitarianism presents indeed a deplorable aspect, appearing to be but a mockery and a farce.

The method which this book seeks to popularise and use as the means of elevating to usefulness the outcasts, the indigent, and unemployed classes of England and of the civilised world, is none other than the scheme originally applied in Bavaria by Count Rumford—an American better known as Benjamin Thompson, a graduate of Harvard, who, having entered the Bavarian service at the close of the war for independence, became the governor of Munich. The scheme is threefold. It is proposed to organise the submerged classes, with their consent of course, into a gigantic co-operative society, subdivided into (1) The City Colony, (2) The Farm

Colony, (3) The Over-Sea Colony. "The scheme in its entirety," we are informed, "may aptly be compared to a great machine foundationed in the lowest slums and purlieus of our great towns and cities, drawing up into its embrace the depraved and destitute of all classes; receiving thieves, harlots, paupers, drunkards, prodigals, all alike, on the simple conditions of their being willing to work and conform to discipline. Drawing up these poor outcasts, reforming them, and creating in them habits of industry, honesty, and truth; teaching them methods by which alike the bread that perishes and that which endures to everlasting life can be won; forwarding them from the city to the country and there continuing the process of regeneration and then pouring them forth on the virgin soils that await their coming in other lands." The scheme is so comprehensive that it includes slum crusades, wagon hospitals, a brigade of Christian apostles near prison-gates to meet and help discharged prisoners, rescue homes for unfallen girls when on the danger line between sin and starvation, bureaus of intelligence, refuges for street children, industrial schools, asylums for moral lunatics, a matrimonial bureau, and banks for the poor. The project is not to be summarily rejected as utopian. It is a gigantic effort to utilise the human refuse that sieves itself through all the means available for enlightenment to the very bottom of the social structure. Into this vast machine the whole mass of soiled humanity would be taken and by the refining process which is clearly elaborated in the book we could touch this material with a new spirit and thus reclaim the men, women, and children to self-support, honor, honesty, and usefulness. For the success of the project "General" Booth has asked for one million pounds.

Three serious objections may be made to the scheme. The first is the placing into the hands of one man or one organisation the power of disposing, and the custody, of five millions of dollars—an objection which Professor Huxley makes with good reason. The second is, the theological environment which is a seeming part and parcel of the whole machine. And the third is, the superficial and unradical character of the remedy. Concerning the first objection it may be simply said, that history proves that the experiment which the "General" is about to make is a dangerous one. Professor Huxley maintains with more than usual gravity, that the unquestionable obedience which every soldier in the Salvation Army is expected, and by verbal contract is duly bound, to maintain for all orders from headquarters, gives the most suspicious aspect to the probable tyrannical development of his army in the future, as was illustrated for example in the Franciscan order founded in the thirteenth century by St. Francis. After his death, although the order was pledged by him to mendicancy and absolute separation from all worldly entanglements, it became "one of the most powerful, wealthy, and worldly corporations in all Christendom, with their fingers in every sink of political and social corruption." What guarantee is there that the Salvation Army may not become likewise involved and exercise an imperialism and fanaticism not to be exceeded even by the Jesuits or Mormons? "It is" writes Professor Huxley in the *London*

Times, "a greater evil to have the intellect of a nation put down by organised fanaticism, to see its political and industrial affairs at the mercy of a despot whose chief thought is to make that fanaticism prevail, to watch the degradation of men who should feel themselves individually responsible for their own and their country's fate, to mere brute instruments ready to the hand of a master for any use to which he may put them."

Another objection and one equally as fatal is the religious aspect which is given to the movement. As such it bears a relation to the problem of civilisation which is all important. To insist that every wicked man or woman in order to be righteous and happy must, ought, or will, believe in historical Christianity, is absurd enough, and to project or infuse into the whole character of a social reform movement a theological idea as a necessary element in its efficacy is certainly ridiculous, but to make the work of the elevation of the degenerate masses of mankind a mere accessory to a belief in an irrational and already obsolete religious doctrine or contingent upon it,—at least to emphasize it as a means to the adoption of the unfortunates into one organisation where all believe alike, or where by virtue of the gratitude they bear to those who have materially helped them, they conform or try to conform to their mode of thinking,—is indeed one of the sad mistakes upon which the "General's" social project is built. For in the submerged class, there are doubtless many who are not Christians in belief, who indeed, however fortunate they may become, yet could not subscribe to the creed of the Evangelical Church or honestly engage in a work organised in the interest of so-called historical Christianity. It is not necessary in order to make man good to make him a Christian, or a Jew, or a Buddhist, in belief. The point to emphasise is goodness of character and not merely an intellectual profession of faith. Once get a man to be good, or to hate sin and love righteousness, and he will, if he never makes a Christian profession, be as useful a man as society might wish. Righteousness will take any man or woman safely and happily through the world. The truth is just as the poet stated it:

"A man may cry 'Church! Church!' at every word,
And have no more grace than other people;
The daw 's not reckoned a religious bird
Because he keeps a-cawing in the steeple."

It is not, therefore, necessary, to the success of "General" Booth's scheme that it should be hitched to some popular, although unscientific and unreasonable religious conception of life; or that he should consider a reform in the life of any man a miracle, and therefore attribute all such to the direct interposition of God. The scheme, if a success at all, will depend, as the organisation of the Salvation Army has depended, upon the enthusiasm and enterprise of the "General" and his constituency. And all reliance upon God without any intelligent human effort in behalf of the outcasts of society would only gorge a greater multitude of humanity into the bogs and sinks of iniquity. As well might we expect a locomotive to move by tackling scripture all over it, as to expect any great social reform movement to be a suc-

cess by associating it or making it depend upon some sort of religious creed. Still whatever may be said against religious interference with social problems, the work of "General" Booth puts to shame the church whose trifling doctrinal and polemical controversies have so blinded its judgment as to neglect its duties toward the submerged classes and leave them to so enormously increase that in order to save the world from almost hopeless ruin a new organisation such as the Salvation Army had to come forth. The church has a far more important duty to perform than that of merely existing, and it will never emblazon the record which its founder gave it by his self-sacrificing life and his noble death upon the cross until it takes its wealth of brain, heart, and money, and becomes indeed the modern Saviour of the world.

The third objection and doubtless the most important one of all is the superficial and unradical character of the remedy. It is not here implied that the project is useless although inclusive. The point made is this, that whatever the "General" may do to dredge the bogs of sin and clean the streets of beggars, the idlers, the unemployed, the waifs, the prostitutes, the drunkards, and the criminal class, and put all such in the way of usefulness, manliness, and respectability, what does he do or what is to be done to keep the new or fresh material from sinking into mire? While the "General" is working among the lowest, thousands are being prepared among the highest for the inevitable fate from which he is plucking the helpless ones as brands from the burning. While he is gathering up the submerged and placing them in his machine, the mill without still grinds on and on, crushing as large a number year by year as he may help and save. His method might consistently be compared to one where a man would transform rotten apples into good ones without affecting the tree that produces them. Although the criminal and sinful classes influence the innocent and unsophisticated, yet it cannot be proven that the bulk of the people will remain pure, true, honest, upright, if there were no sinful or criminal class! And hence even if all such who are avowedly sinful were made better and their pernicious influence removed from the world by the method here proposed, sin itself would still inhere in the nature of man's life and would drag thousands down to ruin and misery. Like the mosaic paintings which can only be destroyed by destroying the stones upon which they are impressed, so sin seems to be bound up in human nature. To get at it and destroy it utterly by one *coup* one must annihilate the constitution of the universe. The problem of civilisation is such that it cannot be solved by one specific reform. For to develop man it seems to be necessary that he should pass through the treatment which the long and inevitable process of experience and education can give. Although sin like poverty is but relative, yet it is the name for the conduct into which man is led either by a neglect or abuse of opportunity, or by some inevitable fatality. It is not here contended that man cannot rid himself or society of any disposition to sin. What is maintained is that it cannot be abolished from the world by any spasmodic effort such as that which characterises the present project, but that it will pass away only where and when humanity becomes perfectly educated. And this state of civilisation, by the way, does not

seem to be so surprisingly near at hand. Nor can material help, such as food, shelter, clothing, and what not, altogether effect or even change the moral status of a man's life. Thousands whose material wants are amply provided for revel in sin and corruption, and the dreadful orgy where vice holds carnival reels and swaggers in the palaces where amid gilded refinements and dazzling splendor the so-called better classes disport themselves. It is true that when a man is starving or naked, bread and clothing are the things which will satisfy his most immediate wants, and not prayers or sermons. To supply such wants is easy enough, but to so arouse or kindle into a flame of fortitude and manliness, the diseased conscience and the perverted judgment, to so operate upon the will as to make the man able to not only choose but do the right, is the great and radical difficulty which is not so easily overcome. Psychology and medicine seem to have no remedy to offer, while religion for these many years has simply touched the hem of the garment—while the abandoned classes have seemingly multiplied on our hands.

In concluding these remarks we cannot forbear to express our regret that the real author of the book has given it over to "General" Booth and allowed him not only the credit of authorship, but most likely also the privilege of mixing up a scheme of social reform with the politics of the Salvation Army. The book was "boomed" in this way, but we fear that it will at the same time be doomed in this way. The Salvation Army and its founder have reaped much undeserved praise. "General" Booth has received incredible sums from enthusiasts to support the scheme, and these sums have to a great extent been used to advertise it. It appears to us that "General" Booth has contracted a debt which he will be unable to pay. The better situated classes of society do not lack in sympathy for their wretched fellow-men, and it sets us thinking, how strong human sentimentality must be that the propagation of the mere idea of curing the evils of mankind proposed in this book as feasible with the aid of one million pounds furnishes ample means to a religious enthusiast whose method of salvation is rather noisy than thorough, representing a kind of barbarous relapse and only adapted to the lowest and most uneducated classes. We should know that sentimentality cannot save. Sentiment and sympathy are good things, but unless they are backed by a cold consideration of fact and rational foresight, they are worse than useless.

It will be wise to consider the propositions made in "In Darkest England" without taking into consideration the rôle to be played in the scheme by the Salvation Army. But while the reader may be just enough to consider the plan of social reform on its own merits, "General" Booth is in possession of the funds and will be the general manager of the experiment.

TK

PLANKTON-STUDIEN. Vergleichende Untersuchungen ueber die Bedeutung und Zusammensetzung der pelagischen Fauna und Flora. By *Ernst Haeckel*. Jena: Gustav Fischer.

The first systematic studies of the innumerable organisms which almost everywhere drift about in the ocean, were made by Professor Johannes Müller who

some forty years ago made excursions in the North Sea. Haeckel, then a student twenty years old, accompanied him on one of these excursions to Heligoland. Since then these investigations have been conducted on a larger scale. The English vessel "Challenger" cruised in different oceans for no less than forty months, and the results of this great undertaking were published by John Murray in the "Voyage of H. M. S. Challenger"—a voluminous work consisting of eighty-two zo-ological reports, to which Professor Haeckel also has contributed his "Report on the Deep-Sea Keratosa." The German government sent out the German cruiser "National" on the same errand. The scientists of the expedition were Hensen, Brandt, Dahl, Schütt, Fischer, Krümmel. They were at sea altogether ninety-three days making a circuitous trip on the Atlantic ocean, touching at the Bermudas, Brazil, and the Azores. The results of the expedition, published in reports by Hensen, Brandt, Du Bois-Reymond, and Krümmel, were considered as very satisfactory and received the unreserved applause of the German press. Professor Haeckel is of a different opinion. He considers the reports as standing in flat contradiction to former valuable observations, especially to those of the English "Challenger" and the Italian "Vettor Pisani" expeditions. Hensen's results rest upon a weak supposition and contain wrong generalisations; even his method is, according to Haeckel, entirely useless, giving a wrong presentation of the problems of pelagic biology.

The word "plankton" was introduced by Hensen. Haeckel adopts it because he considers the Greek term preferable to Johannes Müller's *Auftrieb* or pelagic *Mulder* (the latter has been adopted also by English, French, and Italian planktologists). By plankton (*πλαγκτόν*), derived from *πλάζω*, to roam about, is understood the drifting micro-organisms of the sea.

Professor Haeckel in the present volume not only corrects Professor Hensen's errors, but also gives a report of his own observations. Not the least valuable part of the brochure is the exact terminology which Professor Haeckel proposes in order to escape the confusion necessarily resulting from a looseness of terms. κ.

DIE ALLGEMEINE WELTANSCHAUUNG IN IHRER HISTORISCHEN ENTWICKELUNG.
Charakterbilder aus der Geschichte der Naturwissenschaften. By *Carus Sterne*.
Mit zahlreichen Porträts und Textabbildungen. Stuttgart: Otto Weisert.

Dr. Ernst Krause, better known by the *nom de plume* of "Carus Sterne," has here undertaken to present the modern world-conception as contrasted with the olden one. We have scarcely ever met with a book that contains in so popular a form all the noteworthy facts of the great progress that has been achieved in science since the time of Copernicus. The results of the evolution-theory are generally known, but the road and the stations of the road on which science has reached its present position, now almost universally recognised among men, are almost forgotten. No one perhaps is better able to tell us of this great struggle for truth than the enthusiastic disciple of Darwin, Carus Sterne. Carus Sterne and his friend

Prof. Ernst Haeckel, have done no small work in obtaining recognition for the theory of evolution in Germany. While Haeckel's work has been confined to the field of exact science, Carus Sterne has complemented the labors of his co-worker by pointing out the moral truths contained in Darwinism. We are aware of the fact that Carus Sterne has also written purely scientific works, "Werden und Vergehen," for instance; but what we wish to emphasise as his especial merit is that he was, so far as we know, the first to call attention to the moral workings of nature in her great cosmic empire. As an article characteristic of this trait in Carus Sterne's writings we refer the reader not familiar with German literature to his article "The Education of Parents by their Children," a translation of which appeared in Nos. 22 and 23 of *The Open Court*.

The present book (over 400 pages) discusses the following subjects: Pagan and Christian Cosmology; Copernicus, Tycho Brahe, and Kepler; The Controversy Concerning the Geo-centric View; The Infinitude of Habitable Worlds; From Bacon to Newton; The Beginnings of an Animal- and Plant-Geography; The Doctrine of Spontaneous Generation; The Discussion Concerning the Origin of Birds; The Terrestrial Globe and Its Fossils; Diluvianism; The Mongrel Theory; The Doctrines of Preformation and Metamorphosis; The Doctrine of Catastrophes; Persistence or Mutability; The Controversy on the Anthropocentric View; The Origin of Language; On the History of Evolution.

K.

UEBER DIE AUFGABEN EINER ALLGEMEINEN RECHTSWISSENSCHAFT. By Dr. Alb. Herm. Post. Oldenburg and Leipsic: A. Schwartz.

The author of this little book, Dr. Albert Hermann Post, a Judge of the courts of the free city of Bremen, Germany, has made the study of ethnological jurisprudence the scientific work of his life. His idea and purpose are to establish a positive science of jurisprudence in the widest and most comprehensive sense of the word, on the basis of an investigation of all the forms of law, available to research, that have ever appeared. A universal science of jurisprudence, according to this conception, would have for its subject-matter the contents of the jural sense or consciousness of the entire human race,—the jural facts of the totality of human society. In other words, this science must be, not only historical, but *ethnological*. It must include the jural life not only of the civilised, but also of the uncivilised races of mankind: it must comprehend *all*. It thus constitutes a step beyond that great movement of the beginning of this century which gave us the science of the history of law. It extends the latter, supplements it, and aims to find in the juro-social existence of undeveloped and uncivilised races the germs of legal practices and institutions that the literary history and traditions of civilised peoples would never supply.

The matter of the present work of Dr. Post takes up some 215 pages. It treats of the available sources of such a universal science of law, of the elaboration of these sources; it gives a concise and illustrative epitome of the most important

parallel phenomena met with in the jural life of the human race,—e. g. in the departments of the Law of Inheritance, of Property, of Marriage, etc., etc.,—and a survey of the separate ethnic divisions of law over the whole earth.

It is a grand task—the realisation of this conception. And its execution in its enormous magnitude is only possible through the speedy and intelligent co-operation of scientists and travellers as well as jurists. It will make of jurisprudence a *natural science*, as distinguished from the *a priori* character this study has up till now assumed; and its prosecution will impart into the science a light and freshness which it sadly needs. Next to theology, the science of law is least pervaded with the spirit of modern research. And this is eminently so in our country, where hardly the history, let alone the ethnology of law, is studied.

We are tempted to give a much more thorough and detailed exposition of Dr. Post's ideas. But an original article will appear from his pen in a future number of *The Monist*, and therefore we are brief.

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PERIODICALS.

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THE UNDYING GERM-PLASM AND THE IMMORTAL SOUL. By R. von Lendenfeld.
CRITICAL NOTICES: Pikler's "The Psychology of the Belief in Objective Existence"; Ferrier's "The Croonian Lectures on Cerebral Localisation"; Jevons's "Pure Logic and other Minor Works"; Marshall's "Principles of Economics, I"; Mackenzie's "An Introduction to Social Philosophy"; Fouillée's "L'Evolutionnisme des Idées-Forces"; Koenig's "Die Entwicklung des Causalproblems."

On Physiological Expression in Psychology. In opposition to the "subjective purism" in psychology advocated by Mr. Stout and Mr. Bradley. The mixture of the psychical with the physical is such as to prove that mental processes, however distinct from bodily processes, have never owned even a vocabulary of their own. Pleasure and pain are psychical states, but we cannot theorise fully upon them without adverting to their physical causes or conditions. The action of drugs proves that the physical constitution of the nerve-substance is a paramount condition of our sensibility, pleasurable or painful. By taking the organs of special sense in separation we can exhaust the modes of sensibility under each, and when we look minutely into the anatomy of the several organs, we obtain further helps to the subdivision and distinction of the individual sensations. Connected with the physics of the brain, apart from the nervous substance and its conditions, is the important state known as excitement, with its opposites quiescence, languor, repose, drowsiness, sleep, and insensibility. The theory of the Will must rely, in the first instance, upon subjective sequences, but the physical consequences of pleasure and pain are a two-fold activity—Expression and Volition, and for verification of any hypothesis as to priority between these two forms of the physical outcome of feeling, the sequence must be taken on the physical side alone. As regards the emotions, taken in themselves, the tracing of physical concomitance is unavoidable. In Psychophysics the experiments are made upon the physical side, though not to the exclusion of subjective reference. A law relating to the seat of ideas obtained in the first instance through the senses, declares the nervous tracts to be the same in both, thus

connecting Sense with Intellect. It has always been impossible to avoid describing ideas as modified repetitions of sensation, and employing for that purpose the materialism of the sense-organs. While eminently applicable to all the phenomena of mind at their elementary stage—Sensation, Intellect, Emotion, Will—physiological conditions cease to have the like bearing in the higher complications. In all that part of Association that states the order of recurrence of our ideas in Memory, subjective investigation is paramount and exclusive. But the state described as conscious intensity, excitement, mental concentration, attention, interest, is expressible both subjectively and physiologically. The constant application of spiritual remedies to bodily ailments is an important aspect of the union of mind and body, and their interaction in those instances is of great significance.

Apperception and the Movement of Attention. Thinking is action directed towards intellectual ends. Intellectual ends are attained by an appropriate combination of movements of attention. Attention and apperception, as this word is applied by Steinthal, reciprocally determine each other. The nature of attention is explained in accordance with the monoidism of M. Ribot, but contrary to his view it is declared to be a constant character of our mental life, although the monoidism is not always complete. Apperception is the process by which a mental system incorporates or tends to incorporate a new element. The effect of attention is largely dependent on the apperception which accompanies it, and of which it is an auxiliary process. The movement of attention fastening upon the presentation to be apperceived, fixes it in the focus of consciousness, until the apperceptive system has finally succeeded or failed in assimilating it. The reason why one ideal group becomes apperceptive in preference to the others lies mainly in its greater affinity with the presentation to be apperceived. The conditions determining the strength of apperceptive systems may be either extrinsic or intrinsic. The extrinsic consist in passing circumstances which from time to time favor its activity. The intrinsic conditions are inherent in the constitution of the system itself. Among the former are the co-operation of another system; the recovery or the intensity of its own previous action; the influence of organic sensation; its own freshness arising from previous repose. Of these the organic sensation is of fundamental importance. The influence of the *cœnæsthesis* pervades the whole mental life. Every specific kind of emotion is accompanied by a characteristic mode of organic reaction. The intrinsic conditions are the comprehensiveness of the system; its internal organisation, of which the philosophy of Hegel is cited as an example; the strength of the cohesion between its parts; the nature of the sensory material which enters predominantly into its composition; that is, the comparative excitability of ideas derived from different senses. The normal working of competition, co-operation, and conflict, may be illustrated by contrasting it with the pathological state called *suggestibility*, in which those processes are more or less completely in abeyance. The conditions which determine the train of ideas arise from the fact that attention, being a motor process, depends on feeling, which dependence cannot be separated from that on apperception. Feeling gives unity to mental process, and is a simple mode of consciousness resulting from the excitement of a multiplicity of elements, and it causes attention to be concentrated on the central presentation from which the wave of excitement is radiated. The essential characteristic of a train of *thought*, as distinguished from a mere train of ideas, is that the relation linking each idea to its predecessor forms also a source of the interest through which it attracts attention. The ground of the distinction is that thinking involves the activity of a proportional system as such, that is "a system adapted to apper-

ceive objects in other respects most diverse from each other, merely because they agree in being capable of entering into certain relations." The modified working of the principle of association through the apperceptive activity of a proportional system, is *proportional* or *analogical production*, which may possibly operate in every instance of the suggestion of one idea by another. A reversion of attention to a previous link in a chain of ideas, giving rise to a modified repetition of it, is a distinctive feature of *thinking*. In a separate article will be dealt with the special part played by language, which from a psychological point of view is "a peculiar movement of attention having a peculiar influence on apperceptive process."

Helmholtz's Theory of Space-Perception. The doctrine of "unconscious inference" is explicitly founded upon the general theory of knowledge formed by Helmholtz, which is identical with that of Kant, and Helmholtz's investigation into the genesis of space-perception applied to the problem which Kant did not consider, namely, the perception of particular or concrete spaces. The distinction made by the former between the inference from the data of sense and that in which the data are consciously known to be signs, by calling the inductive inferences of the sciences *conscious*, and those involved in external perception of world *unconscious*, is open to the charge of involving a contradiction. On the one hand, the theory of "unconscious inference" supports the empirical doctrine of perception only in consequence of calling the process an inference. On the other hand, to call the process "unconscious" is to restore the conception of immediacy which the idea of inference is supposed to exclude. This contradiction may not be insisted on, but, as the phenomena of binocular adjustment discussed in a previous article showed in the visual consciousness a *quale* which, with or without its relation to tactual and muscular extension, was other than plane dimension, Helmholtz must, unless this *quale* can be proved to be result of inference, limit the application of his theory to the synthetic connection between touch and sight. *Parallax of motion*, which consists of the different afferent movements or velocities of bodies in horizontal meridians, and situated at different distances from the observer, seems to do the same for monocular vision that adjustment and fusion do for binocular vision. The phenomena attending certain experiments in which the parallax of motion was observed "correspond exactly to the conception of those who hold that the representative of plane dimension in the retinal image decides the nature of all perceptions whose character is not presented in the image except as a visual sign, and hence that aught beyond magnitude must be the result of influence." An examination of Helmholtz's fundamental principle, "the denial of all pre-established harmony between the nature of impressions and the nature of the external world," confirms the view that the conception of space may be properly a visual one, requiring the superior constancy of touch to correct illusions growing out of the complexities of vision. If we limit visual phenomena as data to mere variations of kind and distinctness in color, we cannot account for such cases as the appearance and inversion of mathematical perspective, binocular localisation and translocation, and the distinct effect of the monocular parallax of motion, qualities which are dimensional in their nature. "While the complexities of space-perception make the co-operation of inferential agencies very probable, yet the special quality must be originally given somewhere in consciousness either as an object of perception or as a mental construction, in order to furnish a basis for inferences to its existence or its relations where they are not immediately cognised. This makes the developed conceptions of abstract and synthetic space a complex of inferences and intuitions."

The Principle of Induction. The ultimate major premiss of Induction accord-

ing to Mill is the Law of Causation which, as he treats it, is a wide generalisation true of sequences just as other generalisations are true of the facts of space. Hence it is itself an induction like other inductions. What is wanted is "an axiom expressing in general terms what we do when we make a particular statement universal, which makes explicit the truth implied by the making of any generalisation whatever." The Law of Causation will be found to be a particular application of this wider axiom, and the axiom itself must be sought from the analysis of ordinary simple generalisations. When we connect truths together, or reason, we *support* an inferred judgment by some other assertion. That we should be able to reason at all involves that any fact, as *B*, should have some other fact, as *C*, to which it is always related; that is, "any fact precisely resembling this *B*, whatever its other attributes and concomitants may be, will be found in a precisely similar relation to a precisely similar *C*." A relation exists between two facts whenever the mind can at once distinguish the facts as two, and at the same time attend to them together and assert something of them considered together. We may speak of a relation between different aspects of the same existing thing. The three alternatives afforded by the axiom as ultimately stated correspond to the three cases in which *A* is the "sum of the conditions of *B*," or in any way a universal correlate of *B*; in which it is the cause of *B* in the popular sense of the term; and in which its connection with *B* is merely 'causal,' that is, "the Law of Causation is the Axiom of Reasoning as applied to the sequences of phenomena." Every fact observed stands in universal relation to some other fact. The judgment of that relation "is implied in the rudimentary inference which states only the particular fact observed and the particular fact now expected. It is explicit in the reason that is conscious of its own grounds and methods, and takes there the form of the universal judgment, or major premiss."

The Undying Germ-Plasm and the Immortal Soul. All unicellular beings such as the Protozoa and the simpler Algæ, Fungi, etc., reproduce themselves by means of simple fission, and consequently they are immortal. All the single individuals of a family of unicellular beings belong to each other, although they be isolated. Amongst certain infusoria they do, in fact, remain together and build up branching colonies. Later on, division of labor made its appearance and increased the dependence of the individuals upon one another, so that their individuality was to a great extent lost. By the development of this process, multicellular Metazoa arose from colonies of similar Protozoa, and at length culminated in the higher animals and man. All the cell-series are immortal, but they all must die because the structure which is built up by them collectively is mortal. The reproductive cells are the only kind adapted for existence outside the body, and from time to time some of the human reproductive cells succeed in conjugating, and from them a new individual arises. The whole structure of man is acquired with the one object in view of maintaining the series of reproductive cells, of which he is, so to speak, the slave. They are the most important and essential and also the undying parts of the organism. The series of reproductive cells thus possess the essential attributes of the human soul. If we compare the conception of the soul as held by various related religions, and take the characteristics invariably ascribed to the soul, we find that they hold also for the series of reproductive cells continually developing within the body. The ordinary conception of the fate of the soul after death agrees fundamentally with the result of observation on the prosperity of the series of germ-cells. That fate depends on conduct in the body, and the only possible definition of a good deed, that is approved by conscience, is one which will benefit the series of germ-cells

arising from one individual, that is ourselves and our family, and further which will be of use to others with their own series of germ-cells, and that in proportion to the degree of connection or relationship. Thus, "the apparently enigmatical conception of the eternal soul is founded on the actual immortality and continuity of the germ-plasma." (London: Williams & Norgate.)

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THE ETHICS OF SOCIALISM. Steinthal—The Social Utopia; Paulsen—Socialism and Social Reform. By *Prof. Franklin H. Giddings.*

ETHICAL AND KINDRED SOCIETIES IN GREAT BRITAIN. By *Mrs. M. McCallum.*

A New Study of Psychology. There are three fairly distinct types of treatment in text-books of psychology. The first type, is the science of the "mind" considered as an entity, of whose nature we might otherwise know much or little, but of which we at all events knew that it had a certain substantial unity. This was supplemented, or succeeded, by the theory of the 'ideas,' and their 'associations.' A third method confines its investigations to the facts and laws of the nervous system, with only such use of introspection as was found absolutely indispensable. Professor James, in his "Principles of Psychology," does not accept primarily any one of these views. The unit he adopts in mental analysis might be defined as "so much of the mental process as may be supposed to run parallel to a relatively simple nervous function in the cortex of the living brain, in so far as this cortex functions with a certain unity." Professor James rejects the unconscious in every form, and above all the unconscious mind-atom. He says, "the special natural science of psychology must stop with the mere functional formula. If the passing be the directly verifiable existent, which no school has hitherto doubted it to be, then that thought is itself the thinker, and psychology need not look beyond." This life of passing thoughts needs only the fundamental hypothesis that the moments as they pass really know one another, that the present is actually acquainted with the past, in order to give as a resultant of the whole life such unity as we need for purposes of psychological science. In relation to volition and freedom, Professor James holds that the idea of the end tends more and more to make itself all-sufficient, and that "motives," so-called, are "ideas of ends" which owing to their conflict, are unable to pass over into acts so long as they remain mere motives. The experience of deciding a conflict of motives is "the experience of the triumph of one idea of the end over other ideas." The act of voluntary decision is experienced as an act of "conscious attention to an idea," and nothing else. Volition is primarily a relation, "not between ourself and extra-mental matter, but between ourself and our own states of mind." Professor James's own belief is that the question of freewill is insolvable on strictly psychological grounds, although on ethical grounds he ascribes to the alternative of freedom. In relation to the question of pleasure and pain as

motives, he points out that the 'idea-motor' acts, even on a very high plane, express the presence of the 'idea of an end,' and this end may itself be very painful, yet it tends to carry itself out. It wins because we attend to it, and whether or no attention is free, certain it is that attention often rather determines pleasure and pain themselves, than is determined by them. In conclusion Professor Royce says in relation to Professor James's book: "His 'passing moments,' which can 'know' and which can freely 'attend,' which are 'self-related,' and which have 'unity,' and which are still so intimately bound to the 'neural process,' have just the paradoxical and hypothetical character which requires one, in one's philosophy, to go beyond them, and to declare them but illusory expressions in phenomenal form of an infinitely deeper truth."

The Inner Life in Relation to Morality. The emotions that are called up by the thought of the world as an organic whole constitute the inner life, that which Clifford calls 'cosmic emotion.' These emotions, although they do not end in the human soul, impart a spirit and diffuse an air over the rest of life: they have no separate external expression of their own. The pivot of man's inner life is the thought of himself as a part or member of a universal order. The object of the paper is to answer the questions: what this thought is, or, ought to be; what are some of the forms which the feeling it rouses takes; what are some of its special relations to social morality; and what practical means may be suggested under modern conditions for the cultivation of it. The view of the world most characteristic of the time in which we live, has laid the foundation for an entirely new attitude of mind towards the cosmos at large. The world is now known to be an organic whole. This organism is the invisible background which is presupposed in the partial glimpses of it which we call common perception and the special sciences. If we look *inwards* we have the *human conscience* as the symbol of a microcosm of moral relations between the different parts of our nature on the one hand and the different members of human society on the other. The cosmic principle clothing itself in the twofold garb of which we know it, is the ultimate object of the emotion described as the inner life. This brings with it that which lies at the root of all religion—the sense of dependence, by which is meant, the feeling that we are born into and supported by a world which our individual wills did not make. This at first produces a vague sense of fear in the presence of forces other and mightier than ourselves. But generally it has passed in us into a higher form, a sense of fearless faith in truth and right, which are the laws of nature. The faculty of relating ourselves to the world in its widest, which is also its deepest, aspects, with its appropriate feeling invests our everyday duties with a new meaning, and gives them a wider range by connecting them with the general life of the world. Morality is thus raised to a higher power; it passes from "mere morality" into "morality touched with emotion," and thus becomes a species of religion. Among other means of cultivating the inner life are the attending the *services* of the churches, although faith has been lost in their dogmas; the reading of the books, whether belonging to Christian literature or not, which are in the best sense religious; the study of philosophy. We are on the right lines if we cling to the great watchwords of our own time,—Evolution, Progress, Organic Order.

Moral Theory and Practice. Moral theory is the analytic perception of the conditions and relations in hand in a given act,—it is the action in idea. It is the construction of the act in thought against its outward construction. It is, therefore, the doing,—the act itself, in its emerging. So far are we from any divorce of moral theory and practice, that theory is the ideal act, and conduct is the executed in-

sight. Moral conduct is absolutely individualised, and it is precisely that which realises an idea, a conception. The breadth of action is measured by the insight of the agent. Just so far as the question, What are the conditions which require action and what the action they demand, is raised and answered, is action moral and not merely instinctive or sentimental. This is a work of analysis, which requires the possession of certain working tools. What we call moral rules are precisely such tools of analysis. The Golden Rule is a marvellous tool of analysis but it gives no knowledge, of itself, of what we should do. As a tool of analysis the moral rule is an idea. A philosophic theory of ethics is a similar idea to the Golden Rule, but one of deeper grasp, and therefore wider hold. It bears much the same relation to the particular rule as this to the special case. It is a tool for the analysis of its meaning, and thereby a tool for giving it greater effect. At the back of the Golden Rule are other larger ideas which have realised themselves, and been so buried in the common consciousness of men, that they have become integrated with the content of the Golden Rule which itself has become a vast idea, or working tool, of practice. Every philosophic theory of ethics performs in its degree this same service. A man's duty is, not to obey rules, but to respond to the nature of the actual demands which he finds made upon him. The rule is merely an aid toward discriminating what the nature of these relations and demands is. A man has not to do Justice, and Love, and Truth; he has to do justly and truly and lovingly. The relative distinction between the "is" and the "ought," is that the "ought" is the "is" of *action*. The difference between a practical and a theoretical consciousness is that the former is consciousness of *something to be done*. And this consciousness of something to be done is the consciousness of duty. Theory is the cross-section made by intelligence of the given state of action in order to know the conduct that should be; practice is the realisation of the idea thus gained: it is theory in action.

Morals in History. A glance at the history of morals reveals independence and changeableness always and everywhere side by side. So far as we are acquainted with man in social community, the will of the community speaks to the individual concerning his practical conduct with authority; and as an inner appropriation of that will, "the authority of conscience, of practical reason, which naturally exists only in the individual, but through friction with the community becomes filled with a universally valid content." The origin of the common will is lost in the mysterious darkness of primitive times, or of divine revelation. It is science which first extends the individual's circle of experience. Morality is a product of evolution, and is in a state of continual transformation. The sum of the ethical principles or ideals which at any time are current in any nation, presents nothing else than the conception of all that is reciprocally required in a practical direction of its members, for the advantage and profit of the community and the individual persons in it. The requirements of social adaptation are raised into the consciousness of the community. Thus full harmony between the practical needs of a time and its ethics can only be a transitory one. The conditions which evoke the individual will to carry out its own ideals over against the current ones, are none other than those upon which the formation of new organs in general is dependent. The new principles must be of assistance to felt needs; they must be founded in the vital relations of the social body. In answer to the question whether there is progress in morality, it must be said that the circle is becoming continually greater of those over whom the strict import of the conception of humanity is extended. And this is accompanied by an increasing tenderness towards individuals within the limits unchangeably set by the needs of the community. The means by which we strive

to actualise our ideals are becoming more rational, and "the consciousness is continually becoming clearer, with which all moral principles and judgments are referred to what they signify for the welfare of the race and for its capacity to develop." But do men become better? Probably, on the whole, the inner relations of morality remain unchanged, although quite important shifting may take place at special times and in special stages. It may be that "considered from the highest historical point of view, subjective morality—that is, the conformity of individuals to the standard—relatively declines as the higher elaboration of the moral ideals advances." But this need by no means be the last word of historical development. Intelligence carries illumination into unknown paths which no one as yet has traversed, making the surrounding darkness blacker. But the will finds the means of achieving what is clearly conceived. We have no occasion to be distrustful of the energies of our race. We must not overlook the increasing influence which our scientific knowledge must exercise, not only upon the industrial but also upon the social instinct. The conviction is making rapid strides that even the widest lordship of man over nature must ultimately be a curse to the ruler himself, unless he succeeds in establishing the more beautiful and important supremacy over man; that is, over the natural forces in his own breast—the brutality of passion, the hardness of egoism, and the crudity of moral ignorance. But this can be the work only of scientific knowledge and of its increasing application to social ethical problems.

The Ethics of Doubt—Cardinal Newman. There was an ethical trend in the character and spirit of Cardinal Newman, which lifted him above any one sect or creed and made him a power to all classes of serious minds. The especial influence now excited upon us by his thought, comes from his very antagonism to what is the conspicuous feature in the intellectual life of our century,—the prevalence of doubt, and the growth of rationalism. Goethe sounded the note of warning as to the chief menace that would come to our age through rationalism; that there are few who have a great mind and at the same time are disposed to action; intellect broadens the thought, but tends to weaken the will. Newman has brought it home to us that there is a certain kind of rationalism which is dangerous to character, and we may be forced to consider whether we shall not soon be required in the sphere of ethics to discourage somewhat the universal tendency of doubt and distrust with reference to elemental convictions. There is no question that for many minds the first doubt as to whether a certain class of acts is wrong was the first step in moral decline. A principle of external authority in ethics is required, although not such an authority as that of the state or an absolute church. What we are in need of is that strength of conviction which would make us willing to die for a belief with reference to the *human* world. If we were more and more given to recognising the value of this other external authority,—that is, the consensus of all the past voices of history when they speak to us on the moral life,—we might find, more and more, that enthusiasm coming back and firing once more the hearts of the great men of the age, just as the other kind of authority gave hope, fire, and enthusiasm to the purpose of Newman. Notwithstanding the contrast between Newman, the apostle of faith, and Emerson who has been called the apostle of scepticism or of individualism, they had the same intensity of feeling and appalling sincerity, and both had a like expression of spiritual repose. A mediocre follower of either of them can never be a satisfactory character. An ultra-individualism in everything enfeebles the will, just as the complete abnegation of the free-

dom of thought dwarfs the intellect. In order to have a perfect solution of the difficulty, we need to draw both from Emerson and Newman.

The Ethics of Socialism. The question may be raised whether the philosophical ground of ethical truth does not afford philosophical standing to some sort of socialism. This view of the problem has evidently pervaded the thinking of Professor Paulsen in his "System der Ethik mit einem Umriss der Staats- und Gesellschaftslehre," and it is prominent in the "Allgemeine Ethik" of D. H. Steinthal. The first question that ought to be raised in regard to socialism is the sociological question, whether society is a product of that universal evolution which brought man himself into existence and conditions all his thought and doings. If so, we may be sure that there are certain general principles, or laws, to which social evolution has conformed in the past, and to which it will go on conforming in the future. The ethical problems involved in the socialistic propositions now before the public may be reduced to two. *First*, if not all men are converted in thought and feeling to socialism, can a majority have any ethical right to compel a minority to surrender individual initiative and submit to dictation of occupation? *Secondly* what is an ethical distribution of product among the workers that create it? Plato and Aristotle alone laid the foundation for a rationalistic argument from purely ethical premises, showing that majorities may rightfully do more than enforce contracts and keep the peace, but the modern restatement and completion of that argument remains to be made. As to the second problem, a strong argument could be made in support of the proposition that an ethical distribution of wealth would be one that should afford equality of satisfaction throughout society, of the desires that are ethically commendable. When the clever literary people hypnotised by Mr. Bellamy's dazzling vision begin to resume their intellectual self-direction, they will discover that equality of income and equality of satisfaction, of legitimate desires, are two different things.

Ethical and Kindred Societies in Great Britain. Speaking broadly the attitude of the societies towards theology and its exponents may be described as one of non-interference or neutrality. They desire to be rather constructive than destructive in their action, for they believe that desirable changes can only be effected by the slow processes of organic growth. With one exception they have none of the characteristics of a church, and they may be described as lecturing and debating societies with or without the addition of what is commonly known as "practical work." They do not retain the services of a single lecturer, but prefer to have speakers who are independent of each other. (Philadelphia: *International Journal of Ethics*, 1602 Chestnut St.)

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REALISME ET IDEALISME. By *Paul Janet*.
L'ART ET LA LOGIQUE. (1st Art.) By *G. Tarde*.
MORALE ET METAPHYSIQUE. By *J. J. Gourd*.
ANALYSES ET COMTES RENDUS.
REVUE DES PERIODIQUES ETRANGERS.
SOCIETE DE PSYCHOLOGIE PHYSIOLOGIQUE.

M. Janet remarks, in his article on *Realism and Idealism*, that since Kant philosophy has concentrated all its efforts on the problem of the objectivity of knowl-

edge. The agreement of reality and thought is a truth of which no one doubts, although many centuries were necessary for its observation. Not only is there agreement between nature and mind, but there is analogy, resemblance, affinity, between these two terms. Not only does nature obey the laws of our mind, implying that there is in it a logical and rational element, but it seems to act with the art which intelligence would employ, if it wished to create the products of nature. How is this union of nature and the mind to be explained? Two solutions present themselves: in which thought can be explained by nature, or nature by thought. The first of these solutions is that called *realism*; the second is *idealism*. Each of these systems has strong reasons in its favor. As to the first, thought and nature are not commensurate and opposed. Thought makes itself part of nature, and the only thought we know directly is our own. For human intelligence is bound to the organisation, and appears to follow all its vicissitudes. The basis of idealism is not less firm. External things exist for us only on the condition of passing through our consciousness. Further, the psychological and physiological analysis of sensations reclaims them all as being only states of the ego. But there are serious objections to both hypotheses. Realism is susceptible of two forms. If thought, considered in relation to the origin of ideas, is explained by sensation, it becomes empiricism; if considered in relation to the substratum of thought, this is explained by organisation, it becomes materialism. As against empiricism, may be objected with Kant that sensation does not explain the necessity and universality of scientific judgments. Against materialism, Fichte showed that a thing which is only a thing could never attain to thought. Thus empiricism is overthrown by the impossibility of explaining science; materialism by the impossibility of explaining thought. In order to meet the objection of Kant, and to explain the appearance of *a priori*, the new empiricists have invoked: (1) the principle of inseparable associations; (2) the principle of hereditary associations. On the other side, the new defenders of materialism in order to explain the transformation of motion into thought, have invoked the great principle of the correlation and transformation of forces in nature. But as to inseparable associations, it may be said, that they give us rather a necessity of fact, than a necessity of law. What science requires is absolute and not relative necessity. The same may be said of the principle of hereditary associations, which merely prolong the chain of experiences. But, further, association itself requires explanation, which shows that it cannot account for the principle of causality. As to the use of the principle of transformation of forces to explain the passage of motion into thought, if the objective and physical cause of our sensations is meant, there is merely transformation of motion into motion. If it is said that sensations are only transformed motions, this affirms what is in question, how motion can transform itself into thought. There are no less serious objections against idealism. The principal one is: all our reasonings about nature are established only on condition that we take nature as our basis. We thus reach the double conclusion: neither nature has produced thought, nor thought has produced nature. The ego is, however, in nature, and nature is a representation of the ego, but, while admitting the reciprocal penetration of the two principles, we are obliged to recognise their mutual independence. There is harmony, not identity. But is there not some being in which the real of nature and the real of thought coexist, and who, according to the formula of Schelling, is the absolute subject-object? Idealism, to be consequent, ought to go as far as the absolute consciousness, to the union of the subjective and objective thought. If the two inferior terms are identified in the absolute mind, this will find in nature and in the mind a double expres-

sion of itself. Nothing prevents us then, says our author, from understanding nature, with Schelling, as the drowsy mind seeking to arouse itself, and the ego on the contrary as a nature which awakens itself.

M. Tarde in *Art and Logic* remarks that the word art has two senses. In its wide conception, it includes all the exercises of the imagination and of human ingenuity, invention in a thousand forms. But in another sense of the word, it answers to the æsthetic needs of society. If we had regard only to the art of the most advanced epochs, we should perhaps say that it serves to satisfy the need of inventive expression or of expressive invention. It seems then, in effect, to be before all expressive or inventive, and the second of these traits appears the most essential. The property of art and also of morality is to seek and to believe to find a divine end in life, a great end worthy of individual sacrifice. When art presents itself separated from morality, when it is an agent not of harmony but of social dissolution, it is a sign that it is imported from abroad. Art is then immoral and dissolvent. In all ages truly logical art has been only the translator and the illuminator of morality. . . . The work of art is not like a product of industry, an artificial organ added to the individual, it is an artificial, imaginary mistress. The privilege of art is to arouse in us sentiments which play in the social life and logic, precisely the rôle of love in the individual life and logic. The sentiment of art is a *collective love* and rejoices to be such. Art is social joy, as love is individual joy.

Morality and Metaphysics. Between practical philosophy and theoretical philosophy there is a real difference of nature. The former concerns the action and the latter the perception, and as we cannot do what yet is not, nor see what is already done, the one has relation to the future, the other to the present or the past. With this difference, they resemble each other, in that both consist in a putting in order, a co-ordination of their objects. Experience is sufficient to furnish all that is necessary for the explanation of practical co-ordination. This requires a fundamental notion of practical order, which metaphysicians see in the notion of the good, but, as the reality of the good cannot be established, it is a chimerical and arbitrary conception. We must seek in the co-ordinated objects themselves the fundamental element around which they will be disposed according to their proper nature. This cannot be the good, since this is the result of practical co-ordination. It is pleasure, not a particular kind of pleasure, but that which is possessed in common by all that pleases, all that satisfies. Volition can never go beyond pleasure. If we desire before having really been sensible of pleasure, it is because we have been ideally sensible of it. Pleasure is inherent in every practical function, it is practically constant, it is practically categorical. We cannot go beyond pleasure of some kind. It cannot be said that pleasure is preceded by function, life. These are only results, groups which have components, and therefore they cannot be the last principle of action. Thus one problem is resolved without recourse to metaphysics.—After the principle of simple co-ordination, must be sought that of the co-ordination which subordinates, which marks a sort of hierarchy. For this the idea of pleasure is not sufficient. It is necessary to limit the point of view, and in the difference of quantity of pleasure will be found the rule of co-ordination. The distinction of more or less offers itself at once, and gives place naturally to degrees, then to a subordination. The rule of the good is: the amplitude of the co-ordination, the degree of intelligibility, the number of facts which compose the object of volition. It is necessary to distinguish between urgency and superiority in proper value. Things which are the most urgent have not necessarily the most value in themselves. Thus the practical subordination ought to dispose its objects inversely, according to

whether it is occupied with their urgency or their proper value. Here also practical philosophy is not obliged to have recourse to metaphysics. Practical philosophy not only ought to regulate its objects on the basis that it has previously fixed, but still ought to assure this regulation for the future. This requires that its coördinations should be made objects of commandment, obligation. The conception of the future pleasure enters into the present; and to each volition is bound by anticipation, ideally, but positively, the future benefit of the practical co-ordination. Thus obligation has its source in a volition imposing practical co-ordination on future volitions. Obligation is in reality causal determination, and as there is a volition more or less marked in each act, and the causal chain is never interrupted, we can be said to be always under the influence of obligation, the power of which increases with life. Determination is uniformisation; and nothing else is asked for the moral imperative. Causal determination is opposed directly to the unconditionment of liberty; but obligation, as well as causal determination in general, remains, moreover, in every partial state, limited by its opposite, liberty, which ever recoils before the continual encroachments of obligation, but without ceasing to be. There is no difficulty in admitting a sanction for the good, although it does not constitute a distinct and new element. The sanction is the consequences of actions from the point of view of pleasures. By the side of moral happiness or unhappiness, should be reserved a place for a happiness or unhappiness in some sort "amoral." The moral good does not exhaust all the good. It is necessary to distinguish between the moral good and the unrestrained good (*bien libre*). There is an immoralisable element which represents the veritable autonomy of the will. As in all coördinations, by reason of all bending under the rule, the moral hierarchy will sometimes injure the reality. Here the notion of the unrestrained good happily intervenes. The reality always reserves its rights in the face of co-ordinations, whatever be their nature. When it asserts itself it is sublime, it is, so to say, raised above every rule, majestic in its sovereign liberty. (Paris: Félix Alcan.)

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Vol. II. Nos. 1 and 2.

CONTENTS:

VERSUCH EINER ERWEITERTEN ANWENDUNG DES FECHNERSCHEN GESETZES IM FARBENSYSTEM. By *H. v. Helmholtz*.

WAS IST UNSER NERVENSYSTEM UND WAS GEHT DARIN VOR? By *Justus Gaule*.

PHYSIOLOGISCH-PSYCHOLOGISCHE STUDIEN UEBER DIE ENTWICKELUNG DER GE-
SICHTSWAHRNEHMUNGEN BEI KINDERN UND BEI OPERIERTEN BLINDGEBORENEN.

By *E. Raehlmann*.

ZWANGSVORSTELLUNGEN OHNE WAHNIDEEN. By *D. Hack-Tuke*.

EIN VERSUCH UEBER DIE INTRAKRANIELLE LEITUNG LEISESTER TOENE VON OHR
ZU OHR. By *Karl L. Schaefer*.

BESPRECHUNGEN. Wundt, Ueber die Methoden der Messung des Bewusstseins-
umfanges. By *Schumann*.

LITTERATURBERICHT.

Professor E. Hering introduced the method of defining colors by data of measurement derived from sensations. He thus became the founder of a new conception in Optics which in many respects promises to give more correct and better explanations not only of the physiology of sight but also of the theory of colors;

his views collide however in some important points with the views of the old school, the leader of which is Professor Helmholtz of Berlin. The first article of the present number of this magazine treats of one of these problems, and the author, Professor Helmholtz, believes that the results of his experiments do not show a gradation of the perceptibility of differences which would justify Professor Hering's theory of colors. Professor Helmholtz applies Fechner's law concerning the measurement of perceptible differences to color-sensations. For the experiments he has made, a wheel was employed (after the method of Maxwell) into which slips of colored paper of various breadth could be inserted. He found by this "photometrical" method that "the effect of an additional color upon the luminosity is effectually weakened by the amount of the same color present in the whole mixture. . . . Equal small amounts of the quantity of light produce the smaller effects the larger the quantities of the same light are in the whole field." We pass by other results of Professor Helmholtz's experiments, for it takes a specialist to go over his calculations and tables; and the investigation has by no means been brought to a final conclusion. "If the strong deviation is not based upon an error," Professor Helmholtz says, "quite another and a different hypothesis would come into question, viz. whether it may not always be the clearest sensation which has effect and that which remains below the threshold does not come into consideration." The revision of his "*Handbuch der physiologischen Optik*" has been the occasion for these experiments of Professor Helmholtz.

Professor Gaule of Zurich propounds a most interesting theory about the development of the trophic functions and the chemical actions of the nervous system. He starts with the idea that the processes of the nervous system are in accord with the law of the conservation of energy. Du Bois Reymond's remark that love and hatred, pleasure and pain would remain unexplained even if all the changes that take place in the arrangement of atoms in our nerves were known and mathematically computable, has made a deep impression because it expresses the disparity of our definitions of atoms on the one side and feelings on the other. Yet our atomistic theory is not final; it is only an auxiliary conception which will simplify thought so long as the present method of considering phenomena from a chemical or physical and geometrical standpoint is retained. As soon as we create a common auxiliary conception to comprise all these sciences, we shall have to broaden our definitions. Taking this position as his philosophical basis, Professor Gaule attempts to consider nervous processes as reflex actions, the latter being clearly conceivable as subject to the law of the conservation of energy. Living beings appear as complexes of forces developed from the chemical actions taking place in their organisms. Through a saturation of the affinities of their carbon and hydrogen atoms with oxygen their potential energy is changed into kinetic energy. The latter is used in many various ways, partly for building up more complex molecules, partly for again storing potential energy, and partly,—and this is a predominant process in animal organisms,—for setting forces free which will serve as a source of their activity. It is such a source of activity which the impressions of the outside world affect. The impression is called *Reiz* or irritation, and the irritation has often been compared to the fuse or the spark igniting a powder-mine. We must however bear in mind that the organism is unlike the powder-mine, not at rest but in constant action and the irritation does not properly speaking evoke a reflex but it only modifies the action taking place. All this is generally conceded by the physiologist. Professor Gaule then proceeds to explain his idea of the nervous development. The cells of the epithelium in the skin perform a peculiar process, called

in German *Verhornung*; they turn into horn (keratine) by the protoplasm's losing its albuminoids. The process does not take place in one cell but in several layers of cells and represents like all actions a play of forces, raising the more keratinised strata from the basal membrane to the surface. The keratinising however is, according to Gaule, only the less important surface-phenomenon of another peculiar process which is directed toward the interior of the organism. An excretion takes place forming extremely fine threads around the cells which pass through the pores of the basal membrane (a fact proved by Caninis and Fraenkel) where they form a plexus. Out of the net-like meshes of these plexuses grow increasingly strong filaments which form the trunks of the nerves. These views agree very well with the observations of Professor His on the foetal development of the nerves. Professor His has indubitably proved that the olfactory nerve for instance does not grow out of but into the hemispheres. The direction of the nervous growth is the same as the direction of their function. Many of the sensory nerves have been proven to, and it is probable that all of them do grow from the periphery into the central organ. Hensen in opposition to this has proposed the theory of an original connection between the peripheral root of the nerve and the central organ; yet whatever side of the controversy may be found in the end to be correct, the result does not much affect Professor Gaule's theory, that the ends of the nerves represent the roots from which they grow and every special irritation must specially affect the secretion which forms the nerve. Having been rather explicit in the basal ideas of Professor Gaule's proposition we can now be brief. The axis-cylinder of the nervous fibre corresponds to the secretion of the nervous root; around it is found the marrow-sheath, a tube of absorbing cells containing, also as proved by Ruehne, a net of neuro-keratine; this neuro-keratine again absorbs the axis-cylinder. To the question Why does not the axis-cylinder disappear? Professor Gaule answers, Because it is constantly renewed. Thus we have a constant flow in the nervous substance, an exchange of materials, an absorption, a secretion, and re-absorption; and in this way it can be, a progress of chemical action conditioning the vertical direction of the nerves upon their plexuses and also the form of the marrow-sheath which appears like craters, one inserted within the other and filed upon the axis-cylinder. Professor Gaule proposes no definite opinion as to the development of the motor nerves; he makes some suggestions which need however further explanation and demonstration. He has apparently not yet finished his investigations and we may expect to hear again from him.

E. Raehlmann, Professor of Ophthalmology at Dorpat, presents a résumé of his experiences as to the visual development of persons blind from birth to whom by a successful operation sight had been restored. We confine ourselves to a few quotations. "Four weeks after the operation of the right eye and a fortnight after that of the left, on April 28th, the first experiments were made on Johann Rubens. April 30th, patient moved his head more than his eyes. He declared he saw perfectly; yet he was unable to recognise any object except his drinking mug, which on the previous day he had felt with his fingers. Also his shoe was not recognised until he had touched it. May 4th, patient could see that a wooden ball differed from a wooden cube, both being of the same color, but was unable to tell that one was round, the other square. Nor could he distinguish the ball from a disc. After much handling the objects he learned to recognise by sight the roundness of the ball and the squareness of the cube, but he remained unable to distinguish the ball from the disc. He learned quickly to grasp objects in the median line of his eyes

but had great difficulty in finding them with his hand when placed at an angle before him.

"May 23d, a glass is again presented to the patient; he sees his picture; noticing the frame, he declares the glass to be a picture. (A picture had been presented to him repeatedly.) Now a second face is shown to him in the glass by the side of his own. Patient becomes greatly bewildered, declaring the picture to be familiar to him. Being asked whether it is that of the Professor, he denies the fact, because the Professor stood beside him. Looking over his shoulder he notices the Professor, and seeing him twice he is confounded. . . . Patient is left alone and remains almost half an hour before the glass. He moves his arm constantly up and down, observing with a smile how the picture in the glass makes the same movements. Requested to touch his nose, he first grasps into the glass, then behind the glass, repeating this several times. His hand then is put on his nose. Now he laughs and touches the several parts of his face, constantly observing the motions of his hand in the glass."

Most instructive cases of diseases of mind are those in which patients cannot help having and obeying certain ideas which are not, however, hallucinations. Dr. Hack Tuke in the fourth article of this number says: "I was consulted once in the case of a lady, the most important symptom of whose disease was that she had to count up to a certain number before doing the most trivial thing; when she turned at night in bed from one side to the other, or when she took out her watch, or in the morning before she rose; when she went downstairs to breakfast, she would suddenly stop on one of the steps and count; at the breakfast table when about to take the tea-pot before touching its handle"; etc. (Arithmomania). Another case. "A young law-student who had distinguished himself at school, one day read the English sentence 'it was not compatible' and shortly after that he found the sentence, 'I like it not' in German. It struck him that the negative in the one case was placed before and in the other after the word negated, and he commenced to ponder on negations in general. It became an all-important and all-absorbing problem to him. It kept him from work. For some time he proposed questions to himself like: Why do we not have cold blood like some other animals? etc. He is at present in great danger of becoming undecisive and wavering in his actions, for his passion of ruminating on his problem of negatives weakens his will and threatens to destroy his energy." (Folie du doute.) Esquirol calls cases of *Zwangsvorstellungen*, in which a patient otherwise healthy is forced to pursue a certain trivial thought, "monomanie raisonnée"; Professor Ball, "intellectual impulses." Although hereditary influences most likely play an important part in this disease they seem to originate in emotions, and Régis for this reason calls them "délire émotif," stating that their ultimate cause must be sought in a diseased state of the ganglionic system of the intestines. Dr. Tuke favors Charcot's term "onomatomanie." The disease is a *Wortbesessenheit*, a word-mania. Certain expressions or phrases are pressing heavily upon the patient's consciousness so as to force him irresistibly to think them or to pronounce them again and again. Not all cases can be classified under word-mania, but such cases as doubt-mania (*Zweifelsucht*) or arithmomania are akin to it. Dr. Tuke's advice is not to fight the disease but to teach the patient to ignore it, to treat it as trivial, for the diseased ideas derive new strength from the opposition made to them.

Professor E. Mach explains Weber's discovery that "if a tuning fork is placed upon the head of a person, one ear being shut, the sound is heard and located in the shut ear," in the following way: The sound passes through the bones of the

cranium to the labyrinth of the ear and thence out of the ear into the air, thus taking the inverse direction of other sounds we hear. If the flow in one ear be stopped, the sound-waves are reflected and the drum vibrates stronger. Hence the tone will be heard more plainly in the shut ear and will be located there. Professor Schaefer in the last article of this number describes an experiment in the same line, which in another way—the transmission of sound through air waves being excluded—proves the intercranial conductivity of very weak sounds from ear to ear. (Hamburg and Leipsic: L. Voss.)

SCHRIFTEN DER GESELLSCHAFT FUER PSYCHOLOGISCHE FORSCHUNG. No. 1.

CONTENTS:

DIE BEDEUTUNG NARCOTISCHER MITTEL FUER DEN HYPNOTISMUS. By *Dr. Freiherrn von Schrenck-Notzing*.

EIN GUTACHTEN UEBER EINEN FALL VON SPONTANEM SOMNAMBULISMUS. By *Prof. Dr. August Forel*.

The psychological societies of Munich and Berlin have started under the above title a periodical the first number of which is very promising. Dr. von Schrenck-Notzing makes some critical remarks on Prof. Bernheim's view to consider hypnosis as an increase of suggestibility produced by suggestion. There are observations which do not justify this definition. He then investigates the substitution of narcotics as a means for producing hypnosis and their "suggestive" effects. In the second part of his essay Dr. Schrenck-Notzing speaks about the "suggestive" effects of Indian hemp which in a special preparation under the name of hashish is used in the Orient as a means of intoxication. Reference is made to the Ismaelite secret society "Megalit et Hiemit" (the house of wisdom) consisting of missionaries (*Dais*), adepts (*Fedais*) and laymen (*Refiks*), all of which are bound blindly to obey their grand master (*Dai-al-Doal*). Hassan, an adept of this society, was obliged to flee, 1090, on account of some quarrels. He founded a similar sect at the head of which stood the old man of the mountains (*Shaik-al-Djabal*). Their members, especially the lower classes, the *hashishin*, made themselves formidable in the times of the crusades by their reckless obedience in executing murder and other crimes. The order consisted of 60,000 members and their blind obedience was effected through suggestibility in the state of hashish intoxication. The word assassin is derived from their name. In the year 1255 a Mongolian governor ordered 12,000 hashishin to be executed on account of the dangerous character of their sect. The secret of their formidable obedience appears to have been the method of intoxicating the neophyte before his admission to the order with hashish in some grand mountain scenery and suggesting to him all the pleasures of paradise which he would find in blind faith and unreserved obedience to the old man of the mountain. Contempt of death, insensibility under the severest tortures, and an unspeakable joy in the fulfilment of their leader's command were the result. It can readily be perceived what a dangerous drug hashish is; nevertheless it is said that the cultivation of Indian hemp, especially among some negro tribes of Africa according to the reports of Wissmann, exercises in several respects a good influence. Some of the barbarians of darkest Africa have given up cannibalism and accustom themselves to more civilised habits. The psychical effects of hashish are described as: (1) a feeling of comfort; (2) dissociation of ideas and a lack of their control; (3) illusion concerning

space and time; (4) an increased sense of hearing; (5) fixed ideas and delirium; (6) a disturbance of affective states, e. g. suspicion; (7) irresistible impulses; (8) illusions and hallucinations. Dr. v. Schrenck-Notzing freely quotes from Moreau, *Du Hashish et de l'aliénation mentale, Etude psychologique* (Paris: Masson, 1845), and adds several experiments of his own.

Mrs. Fay, a somnambule accused of imposition and fraud, was delivered by the County Court of Zurich to Professor Forel for observation who kept her for several days in his institute. The professor's report to the County Court is very interesting in so far as Mrs. Fay, a woman without education, must be considered as a genuine somnambule exhibiting all the symptoms observed in other cases. She had been a servant girl in Basel and since her fifteenth year fell twice a day in an hypnotic sleep. She married and had several children, her youngest child was born while she was in her hypnotic sleep. She made a living by curing patients who consulted her when asleep, and was punished before on that account for imposition. During one of her hypnotic states patients were introduced to her in the presence of Professor Forel and she made her statements in vague terms as almost all somnambules do. The experiment showed that her diagnosis consisted of random guesses which in exceptional cases happened to be correct; sometimes they were not wholly incorrect, but mostly erroneous. She believes herself to be possessed by a spirit whom she calls "Ernst." Professor Forel without considering the woman as a model of truthfulness, believes in her sincerity. He cured her of her hypnotic sleep on her own request. She stated that the money she earned by curing patients did not make up for the loss she endured by not being able to earn a living by work. Professor Forel succeeded with his cure, but he states in a postscript that the woman having returned to her former surroundings, has since suffered from relapses. (Leipsic: Ambr. Abel.)

PHILOSOPHISCHE MONATSFESTE. Vol. XXVII. Nos. 3
and 4.

CONTENTS:

QUANTITAET UND QUALITAET IN BEGRIFF, URTHEIL UND GEGENSTAENDLICHER
ERKENNTNISS. Ein Kapitel der transcendentalen Logik. (Concluded.) By
P. Natorp.

RECENSIONEN.

LITTERATURBERICHT.

BIBLIOGRAPHIE. By Prof. Dr. F. Ascherson.

The conclusion of Prof. P. Natorp's article on *Quantity and Quality in Concept, Judgment, and Objective Cognition* appears to be the most important part of the essay. Professor Natorp is a transcendentalist. He understands Kant in a dualistic sense where the latter says that "the unity of apperception (Einheit der Apperception) is the radical faculty of all our cognition" (Radical-Vermögen aller unserer Erkenntnis). Cognition is defined as "limitation of that which is *per se* infinite. It is natural that for a transcendentalist the greatest difficulty arises when he attempts to let his *a priori* face the facts of reality. Professor Natorp shows great skill and ingenuity in this respect. It is but consistent with his premisses to arrive at an "invincible dualism," yet he adapts his transcendentalism sufficiently to fulfil the demands of experience. Thus he does not come to a real solution but to a *modus vivendi*, which is after all the purpose of philosophy.

Professor Natorp considers the synthetic unity not as given, but as to be realised; a concept is created through definition. The data of experience on the other hand are not the defined, but the definable. They are to be defined by the forms of the concepts, and their fundamental forms are quantity and quality. He says: "The definition as this and as that (as something identical) is a function of the concept, but the concept presupposes sensation as the material to be defined. To consider sensation as given in this its absolute identity which is demanded by the concept, is after all an illusion. Therefore positivism and not idealism confounds the demands of cognition with the given reality, thus adjusting facts to our wants of knowledge. Sensation conceived as a datum and not as a postulate is and remains the infinitely definable and never absolutely defined. . . . It appears easy thus to reduce the dualism of form and matter, concept and sensation, the defined and the definable to one ultimate unity. In one respect positivism succeeds, attributing full definedness, and not mere definableness, to the data; and then, it finds no difficulty in letting the defining function of the concept in its peculiarity disappear by reducing it to a quality of the data."

We do not know to what kind of positivism Professor Natorp refers; yet it seems that it cannot be applied either to Comte's or to Littré's views. Nor does it dispose of the positivism editorially set forth in *The Monist*. Positivism, according to Professor Natorp, is at fault in dropping the definite function of the concept. But he endeavors to avoid the opposite mistake also, viz. "to entirely drop the definable, which might be supposed to be a mere *X*, scarcely representable in clear concepts, or to deduce it from the defining function. This other exaggeration is that of idealism which has found its purest expression in Fichte's philosophy." Professor Natorp by keeping aloof from both errors declares dualism to be insuperable; "dualism," he says, "is a hard fact"—*eine starre Thatsache*."

The trouble with transcendentalists, it seems to us, originates in their method of starting with cognition, with the synthetic unity of apperception, with the forms of concepts. Experience means to them the sense-element of sensation, the contents of concepts without their form. They start with a dualism. When they have completed their system of transcendental forms, they find it hard to explain how to change their rigid laws into the constant flux of reality as presented to us by experience. Should the philosopher not rather start from the function of cognising, which in itself is a unity? He will find that cognition, concept, the synthetic unity of apperception, and all the complex laws of transcendental thought are products of the cognising function. If these laws are rigid, we have made them so. We have made them stable, we have fixed them for a certain purpose. Their rigidity is a legitimate fiction for that purpose, but beyond it it finds no application. Pure logic draws distinctions which do not exist in reality; pure mathematics operates with lines which considered as real things are mere nonentities. The dualism between concept and sensation, between the *a priori* and the *a posteriori*, between thought and thing, between form and matter, is not given in experience, for in experience the formal and the material are one inseparable whole; it is the product of cognition. The cognising function differentiates the data of experience into formal and material aspects; the formal being always of a general character serves as a help for systematising and classifying the material. This appears to us the only way of realising a monistic positivism, and no philosophy can be considered as satisfactory until it represents the data of experience or positive facts in a unitary view, i. e. a harmonious conception free of contradictions.

Professor Natorp has still to battle with the Eleatic question. He begins the

conclusion of his article with the following words: "Let us consider only the most 'important results of our deduction. An explanation of 'becoming,' of 'change' has in 'this way become possible; the solution of the Eleatic problem how 'change' can be 'at all, since *being* means unchangeable definedness; or, how becoming can be, since 'it includes not-being, for being means the transition from not-being into being, or 'from being into not-being. How can we think this combination of position and 'negation without contradiction, a combination of position and negation being a contradiction"? This is rather a late flower of Hegelian thought: but, being presented so vigorously and unequivocally, it illustrates clearly the mistake of transcendentalism in starting from abstract concepts or pure thought, thence coming down to the facts of reality. There transcendentalists have to fit their ideas about being and not-being to experience, and finding insuperable difficulties must consistently become dualists. Professor Natorp's solution of the Eleatic question is "to find a method of thought which overcomes the absolute contradiction of position and negation. . . . This is done by the comprehensive unity, which means identity and at the same time difference, viz. that one is the same as the other and yet not the same."

We should say that the Eleatic question will best be understood by a clear comprehension of the function, the purpose, and the products of cognition.

Says Professor Natorp: "Since Kant has restored in its purity the distinction 'made by the ancients between *αἰσθητά* and *νοητά*, *φαινόμενον* and *νοούμενον*, the authors 'of this distinction, the philosophers of Elea are almost nearer to us than Aristotle." The distinction between thought and sensation is indeed of extraordinary importance. Ideas (thoughts) and sensations are different, but the recognition of this difference is no reason to declare dualism as permanently established. Is not the reason of their difference the difference of abstraction made in each case.

By noumena, i. e. thoughts or ideas, we understand all mental symbols representing things. The ideas "man," "manhood," "virtue," etc., are not sensations, but symbols representing some qualities abstracted from sensations. In making the abstraction "idea" we confine the term, i. e. the symbol "idea," to its representative element alone. We leave out of sight that real ideas vibrating through our brain are at the same time nervous structures in actions; we leave also out of sight that they possess the state of awareness in common with sensations. We do it because their representative nature is of paramount importance. However, in making the abstraction "sensation" we do not exclude the state of awareness, we think first of all of the feeling of a sensation and then also of its form, viz. the special sense-impression. "I have a sensation" is almost equivalent to the phrase "I have a feeling"; a sensation of light means a feeling of the effect of ether-waves upon the retina; a sensation of sound is a feeling of the effect of air-waves upon the drum of the ear; etc. Just as much as ether-waves are not light, and air-waves not sound, (the latter being the effect of the former upon specially adapted feeling substance), so also the sensations light and sound are not the ideas we have of light and sound. The ideas of light and sound are symbols representing in feeling substance the sensations light and sound. These symbols, we suppose, have developed from the memory-images of sensations. They must in their turn also be considered as effects. They are the effects of sense-impressions upon specially adapted feeling substance, viz. upon a higher system of nervous structures, not in direct contact with the periphery, but growing upon and from the peripheral sensory reflex centres. The physiological activity of thoughts is accompanied also with the feeling element; or in other words, thoughts are, as much as sensations, states of awareness. Yet they differ from sensations in that they do not

contain anything of sense-impressions; the latter being an exclusive characteristic of the action of sensory organs. The memory-picture of blackness is not a sensation and the idea of blackness still less.

The distinction between noumena or things of thought and aestheta or sensations is by no means so distinct as is often assumed; for, as we have seen, the most prominent feature of the noumenon is its representative character. Isolated sense-impressions possess no representative character, but sensations do possess it. Sensations are the connecting link between sense-impressions and thoughts, between meaningless feeling and mental states or mind, i. e. representative states of awareness. Ideas are, as it were, an extract of the representative value contained in sensations. This is my conception of the distinction to be made between *αἰσθητά* and *νοητά*, between sense-activity and thought-activity, between the phenomenon and noumenon. It is set forth at length in the discussion with Professor E. Mach in this number. It has been here again set forth at such length, because I am convinced that a final solution of the problem is of great importance. (Heidelberg: Georgie Weiss.)

K.

MINERVA. Rassegna Internazionale. January, 1891.

Minerva will represent the first Italian venture in the direction of a comprehensive magazine of international reference and literary record. The editors, in stating the aims of their new publication, acknowledge that Italy keenly feels the lack of an international intellectual magazine. In Italy the reading public, and persons of an average culture, still seem to be cut off from all stimulating intellectual contact with the outside civilised world; while beyond the Alps, on the contrary, and across the seas, any book, or a simple magazine-article even, be it written in German, English, or French, and legitimately claim from any point of view a certain importance, is at once read by innumerable persons from San Francisco all the way to St. Petersburg. Through the intellectual medium of their international reviews, these nations seem actually to have realised one of Goethe's most ardent aspirations,—the dream of a noble and humanising "world-literature." Nearly all of the articles contained in the present issue of *Minerva* are ably condensed translations and epitomes of articles that have recently appeared in leading English, American, and German reviews and magazines. *La Minerva* is under the direction of Prof. Federico Garlanda of the University of Rome. (Rome: La Società Laziale. Tip Editrice.)

VOPROSY FILOSOFII I PSICHOLOGII.*

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FURTHER REMARKS CONCERNING THE TASK OF THIS REVIEW. By the Editor
Prof. N. Grote.

ETHICS AND EVOLUTION. By *B. N. Beketov.*

LETTERS ON COUNT TOLSTOI'S BOOK "FROM LIFE." By *A. A. Kozlov.*

CONCERNING THE LAW OF THE CONSERVATION OF ENERGY. By *N. N. Strachov.*

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THE DOCTRINE OF WILL IN THE NEW PSYCHOLOGY. By *K. Ventzel*.

BOOK REVIEWS.

REVIEW OF PERIODICALS: 1) Of foreign philosophical Reviews; 2) Of philosophical articles in Russian ecclesiastical papers.

POLEMICAL.

APPENDIX: 1) Materials for the History of Philosophy in Russia; 2) Transactions of the Moscow Psychological Society.

Russia is perhaps that country of all civilised nations of which we know least, and even such authors as Tolstoi who are read all over the world, are perhaps, severed from their surroundings, not correctly understood by us as the Russian understands them. The present magazine, *Problems of Philosophy and Psychology*, being a strictly scientific periodical, is less peculiarly Russian without entirely losing the national characteristics of its home. The intention of the editor has been to develop and to give a chance for a further development of an independent Russian philosophy. The philosophy of the West, we are informed, does not satisfy the Russian mind; the English philosophy is one-sided empirical, the French mathematical, the German too abstract and logical. The Russian philosophy aspires to bring about a well-balanced and harmonious method of thinking in which reason, sentiment, and action—science, art and religion—are reconciled. Professor Grote, the editor of *Problems of Philosophy and Psychology*, by placing the ethical interest in the foreground, hopes that Russian philosophy will become "the salvation of the world from evil."

Among the book reviews we find six pages devoted to *The Ethical Problem*, by Dr. Paul Carus, a translation of which was made for us by Prof. A. Gunlogsen of Chicago. We find however that the reviewer, Mr. P. Astafiew, mixes the position of the author up with that of the societies for ethical culture. If he represents the Magazine's view of reconciling Science, Art, and Religion, it is sure that Religion in the shape of his peculiar creed would get the lion's share. The interest of the little book consists to him in the fact that it clearly characterises a singular anarchical condition; by having lost the old faith, it is utterly unable to replace it. It is an assumption to base ethics and religion on positive and scientific foundations; yet the attempt is curious as a symptom of the times and especially of "enlightened" America.

In answer to one of the most important errors in Mr. Astafiew's review, we have to state that basing ethics upon the facts of life, verified and verifiable by science, does not mean that we have to study psychology in order to be moral. A man can lead a moral life without understanding anything of ethics, the science of morality. Ethics is not an indispensable condition of morality. But it is of paramount importance that ethics—as a science—is not an impossibility. The data of moral life, the impulses of duty, of conscience, of the ought, are not mystical or supernatural, i. e. extra-natural, standing in contradiction to other natural facts; they are not, as the intuitionists maintain, "unanalysable," they are not, as Professor Adler, the founder of the Ethical Societies declares, beyond the pale of science; "the ladder of science," he says, "does not reach so far." The data of moral life are facts of the natural development of man and of human society; they can be investigated by science, they can be compared with other natural facts, they can be classified and understood.

A man can throw a stone without understanding anything of Newton's laws, he can build a hut without understanding architecture. Yet for that reason the study

of ballistics and of architecture are not useless. The man who has studied architecture may bridge the Niagara, which the mound-builders were unable to do. And if a bridge breaks down while the mounds of the mound-builders are still standing, it proves nothing against architecture. An ethical student may have proposed untenable theories in ethics, he may have preached a wrong morality, and may have gone astray himself : all that would prove nothing against the science of ethics. It is to be expected that ethical knowledge, if it leaveneth the whole lump of human society, will raise man's moral life higher, as surely as our knowledge of architecture made it possible that we now build palaces upon the places where in former times stood the wigwams of the Indians. (Moscow, 1891.)

K.